# DRAFT

**(For Public Comment April 28 -- July 31, 1995)**



# Siting Plan

The Commonwealth of Massachusetts
Low-Level Radioactive Waste Management Board
100 Cambridge Street, Room 903
Boston, MA 02202
Telephone: (617) 727-6018 FAX: (617) 727-6084

## PUBLIC MEETING SCHEDULE FOR DRAFT DOCUMENTS

| Date (all 1995) | Time | Type of Meeting | Address (all Massachusetts) |
|---|---|---|---|
| May 10 | 7 - 10 p.m. | Briefing Session | Lasell College, Wolfe Hall<br>1844 Commonwealth Ave.<br>3rd Floor, Room 302-303<br>Newton |
| May 24 | 7 - 10 p.m. | Briefing Session | Berkshire Community College<br>South County Campus Facility<br>343 Main Street, Room S-1<br>Great Barrington |
| June 13 | 7 - 10 p.m. | Public Hearing | Auditorium<br>Adams Memorial Middle School<br>30 Columbia Street<br>Adams |
| June 14 | 7 - 10 p.m. | Public Hearing | Aldermanic Chambers<br>Chicopee City Hall, 4th Floor<br>Chicopee |
| June 15 | 7 - 10 p.m. | Public Hearing | Fellowship Hall<br>First Church Unitarian Universalist<br>15 West Street<br>Leominster |
| June 28 | 7 - 10 p.m. | Briefing Session | Cafeteria<br>Bridgewater-Raynham Reg. H.S.<br>Corner of Center and Mt. Prospect Sts.<br>Bridgewater |

# Draft Siting Plan

April 28, 1995

## EXECUTIVE SUMMARY

This Siting Plan is designed as a reference for the public in understanding the various stages and numerous tasks involved in finding a suitable location (i.e., "site") for a low-level radioactive waste (LLRW) facility. The Plan draws from many state and federal laws and regulations, and the Massachusetts Low-Level Radioactive Waste Management Plan, to explain the steps required to undertake three stages of technical evaluation (Mapping and Screening, Possible Locations, and Candidate Sites). The goal is to ensure the environmental suitability of the chosen site. In addition, the Plan describes a unique program that interrupts the technical evaluation process to encourage volunteered sites.

Section 1.0 of the Plan provides introductory material concerning the legislative and regulatory framework for LLRW management and disposal. This section also describes the determination of need for a Massachusetts disposal facility which was voted by the Management Board (and which will be re-examined routinely); the importance of public participation in the siting process; and the provisions for using state bond funds (to be reimbursed by LLRW generators) to cover all siting costs.

Section 2.0 takes the reader through the many, detailed steps of site selection, and covers the ways the Board will eliminate environmentally unsuitable areas of the Commonwealth from further consideration. The process begins by evaluating ("screening") the whole state under established environmental siting criteria. The Statewide Mapping and Screening Report is the first of many documents to be issued.

After Mapping and Screening comes the Volunteer Sites Program, and the remaining stages of technical evaluation will be temporarily delayed to encourage landowners to volunteer sites. However, volunteered sites will be reviewed using the same environmental criteria as sites chosen through the technical evaluation process.

When technical evaluation resumes, the Board will narrow the search to Possible Locations, then will name two to five parcels, called Candidate Sites. Some or all of these sites may have been volunteered. With the help of local committees (Community Supervisory Committees) representing the interests of their communities, the Board will study the characteristics of each Candidate Site for a full year and eventually will choose one as the Superior Site, where the facility can be built. The Community Supervisory Committee of the Superior Site has the authority to choose from a Board-certified list of companies to build and operate the facility, and from another certified list of technologies that will determine the design of the facility. The site itself will be owned by the Commonwealth.

Section 3.0 of the Siting Plan describes the various planning and management tasks that will be followed by the Management Board and its siting contractors to complete all the steps described in Section 2.0. Four major program areas described include (1) detailed project planning; (2) task integration; (3) establishing a clearly defined and defensible site selection decision-making process; and (4) comprehensive project management and quality assurance programs.

These activities will include the preparation of several project documents. Because the Volunteer Sites Program will occur before the last two stages of technical screening, the development of some task-oriented documents will be delayed until after the Volunteer Program, when a Prime Siting Contractor is retained by the Board to conduct the Possible Locations and Candidate Site stages.

An appendix to this Siting Plan describes the Draft Volunteer Sites Program. Numerous documents referenced in this Plan are available from the offices of the Low-Level Radioactive Waste Management Board, 100 Cambridge Street, Room 903, Boston, MA 02202 [(617) 727-6018].

# TABLE OF CONTENTS

## Abbreviations, Acronyms and Definitions

**Above-ground disposal technology:** A disposal method using one or more engineered barriers (such as vaults, canisters, casks, walls, or other barriers) above the natural grade of the site.

**Active maintenance:** Any significant activity needed during the period of institutional control to maintain a reasonable assurance that the NRC (or DPH) performance objects are met. The term includes major remedial action, such as replacement of disposal unit barriers, but does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor repair of disposal unit barriers, and general disposal site upkeep such as mowing grass.

**Activity:** The rate of disintegration (transformation) or decay of radioactive materials. The units of activity are the curie (Ci) and the becquerel (Bq). One Ci represents $3.7 \times 10^{10}$ nuclear disintegrations per second. One Bq represents 1 nuclear disintegration per second. One Ci is equal to $3.7 \times 10^{10}$ Bq.

**Affected Community:** A community, other than a Site Community, which is identified in an Environmental Impact Report prepared pursuant to section 30 of Chapter 111H, and can be expected to experience significant impacts as a result of the location, development, operation, closure, post-closure observation and maintenance, or institutional control of a facility.

**Agreement State:** A state that has assumed certain regulatory responsibility over byproduct, source, and small quantities of special nuclear material, by virtue of an agreement with the U.S. Nuclear Regulatory Commission.

**Atomic Energy Act (AEA):** The 1946 federal law that established the U.S. Atomic Energy Commission (AEC) to provide regulatory authority over civilian radioactive materials use. A 1959 amendment to the AEA gave each governor the right to enter into an "agreement" with the AEC to regulate certain types and uses of radioactive materials.

**Background radiation:** Radiation that is present in the environment in varying amounts. The sources of this radiation include cosmic radiation, elements in the environment that become radioactive as a result of bombardment by cosmic radiation, and radioactive materials that occur naturally on earth, such as radium, potassium and uranium.

**Below-ground disposal technology:** A disposal method using one or more engineered barriers (such as vaults, canisters, casks, etc.) and covered by earthen materials below the natural grade of the site.

**Biosphere:** The part of the earth's crust, waters, and atmosphere where living organisms can subsist.

**Board (or Management Board):** The Massachusetts Low-Level Radioactive Waste Management Board, which is responsible for planning and effecting the management of LLRW in the Commonwealth.

**Buffer zone:** A parcel of land which is an integral part of a facility that is controlled by the licensee, and acts as a surrounding boundary to the facility.

**Candidate Site:** A site, identified in accordance with the procedures established in section 20 of Chapter 111H, which will be the subject of detailed site characterization as part of the process to select any superior site.

**Chapter 111H (or M.G.L. c.111H):** The Massachusetts law, adopted in 1987, providing the procedures and requirements for the State's management and disposal of LLRW.

**Chief Elected Official:** The mayor of any city; the chairman of the board of selectmen in any town.

**Chief Executive Officer (CEO):** The city manager in any city having a city manager; the mayor in any other city, the town manager in any town having a town manager; the chairman of the board of selectmen In any other town.

**Closure:** The permanent termination of LLRW acceptance at a facility, including closure prior to the scheduled closing date, and the implementation of a closure plan.

**Code of Federal Regulations (CFR):** A documentation of the general rules by the Executive departments and agencies of the Federal Government. The Code is divided Into 50 titles that represent broad areas subject to Federal regulation. Each title is divided into Chapters that usually bear the name of the issuing agency. Each Chapter is further subdivided into Parts covering specific regulatory areas.

**Code of Massachusetts Regulations (CMR):** A documentation of the general rules by the agencies of the Commonwealth. The Code is divided into titles, chapters and parts, similar to that of the Code of Federal Regulations.

**Community:** A city or town of the Commonwealth.

**Community Supervisory Committee:** A committee, established pursuant to section 21 of Chapter 111H, to facility the participation of a community, in which a candidate site is located, in the activities established in Chapter 111H.

**Compact:** A legislatively-authorized contract between states. Compacts must be ratified by the Legislatures of the compact states, and by Congress.

**Compensation:** One category of disbursements available to a Site Community to offset burdens borne by the community.

**Comprehensive operating contract:** A contract entered into by an operator and the Management Board pursuant to Chapter 111H, which specifies the community compensation to be provided by the operator or the Board.

**Concentration:** The amount of a substance in a specified volume. With respect to LLRW the amount of radionuclides in curies per unit volume of waste.

**Critical Path:** The critical path represents the sequence of tasks and task dependencies that define or control the minimum duration of the project.

**Decommissioning:** The safe removal from service of an activity involving radioactive materials or waste, and the reduction of residual radioactivity to a level that permits release of the property for unrestricted use and license termination.

**DEP:** The Massachusetts Department of Environmental Protection.

**Detailed site characterization:** The on-site investigatory and analytical step of site selection established in section 23 of Chapter 111H, and conducted prior to the selection of any superior site.

**Determinable property interest:** An interest in property created with a special limitation that delimits the duration of the interest.

**Development:** All activities undertaken with respect to an LLRW facility during the period commencing with the selection of any superior site, and continuing until the commencement of facility operation.

**Disposal:** The isolation of LLRW from the biosphere inhabited by human beings and their food chains. Provisions in Massachusetts law cause disposal to be analogous to very, very long-term storage.

**Disposal technologies:** The methods which may be employed at a disposal facility for the disposal of LLRW. Examples of acceptable disposal technologies for Massachusetts include "above-ground vaults," "below-ground vaults," "mined cavity," and "above-ground modular canisters with earthen cover." Shallow-land burial is prohibited in Massachusetts.

**Disposal unit:** A discrete structure at a disposal site into which LLRW is placed for disposal. In Massachusetts, disposal units may include vaults or concrete modules.

**DOE:** U.S. Department of Energy.

**Dose:** The quantity of radiation energy absorbed per unit of mass.

**DPH:** The Massachusetts Department of Public Health.

**Engineered barrier:** Any structure or device constructed to increase the ability of a land disposal facility to meet facility performance objectives.

**Environmental monitoring program:** A monitoring program established by the Massachusetts Department of Public Health, after consultation with the Massachusetts Department of Environmental Protection and the Board of Health of each Site Community, for the purpose of collecting and analyzing environmental data prior to construction and throughout the construction, operation, closure, post-closure observation and maintenance, and institutional control of a facility.

**EPA:** The U.S. Environmental Protection Agency.

**Exposure:** The condition of being made subject to the action of radiation; also frequently the quantity of radiation received. The special unit of exposure is the rem or, In International units, the sievert (Sv). 1 rem = 0.01 Sv.

**Facility:** A parcel of land, together with the structures, equipment and improvements thereon or appurtenant thereto, which, pursuant to M.G.L. c.111H, is being developed, is used, or has been used for the treatment, storage or disposal of low-level radioactive waste. A "facility" does not include any property used for temporary storage of LLRW in sealed containers by a broker. The premises of licensed users of radioactive materials are not considered "facilities" under Massachusetts law, unless they were developed as such following the siting procedures and other requirements of M.G.L. Chapter 111H.

**Facility license:** A license to operate a facility issued by the Massachusetts Department of Public Health pursuant to section 31 of M.G.L. 111H, or a licensed issued by the U.S. Nuclear Regulatory Commission.

**Gantt Chart:** A Gantt chart is a graphical representation of a project's workscope and schedule for completion of project tasks. It illustrates tasks and subtasks of the work breakdown structure (WBS), their duration, and their sequence and relationship in time to other tasks and subtasks.

**Go-it-alone (or "unaligned" or "unaffiliated") state:** A state that chooses not to join a regional compact for the purposes of low-level radioactive waste disposal. A go-it-alone state will have to provide for disposal of its LLRW either by developing its own disposal facility, or by contracting with a compact or another unaligned state for access to disposal capacity.

**Half-life:** The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Each radionuclide has a unique half-life. Measured half-lives vary from millionths of a second to billions of years.

**Hazardous waste:** A waste, or combination of wastes, which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may cause, or significantly contribute to an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, or welfare or to the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed, however, not to include solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act of 1967 as amended, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954.

**Hydrogeology:** The study of subsurface waters and related geologic aspects of surface waters.

**Impact payments:** One category of disbursements to a Site Community and potentially Affected and Neighboring Communities as well, which provide monies, services or other tangibles over and above the municipality's expenses in having a facility within its borders.

**Institutional control:** The continued observation, monitoring and care of a facility following transfer of the facility license from the operator to the Board.

**Liability insurance:** Provides protection against injury or property damage which may occur to others, known as "third-party" liability.

**Licensing:** Granting permission to receive, possess, use, transfer, or acquire radioactive materials. Facilities for the storage, treatment, and disposal of LLRW would be licensed; companies and institutions using radioactive materials also require licensure.

**LLRW:** Low-level radioactive waste.

**Long-term storage:** Storage of LLRW for a period of time greater than five years.

**Low-level radioactive waste (or "waste") (LLRW):** Radioactive material that (1) is neither high-level waste, nor spent nuclear fuel, nor by-product material as defined in section 11(e)(2) of the U.S. Atomic Energy Act of 1954, as amended, 42 U.S. C. s.2014(e); and (2) is classified by the Federal Government as low-level radioactive waste, but not including waste which remains a Federal responsibility, as designated in s.3(b) of the Low-Level Radioactive Waste Policy Act, as amended, 42 U.S.C. s.2021c(b), as in effect as of December 8, 1987.

**Low-Level Radioactive Waste Policy Act (LLRWPA):** A 1980 federal law that delegated responsibility for LLRW disposal to the states, and authorized the formation of regional compacts among

states to manage the disposal of LLRW.

**Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA):** A 1985 federal law which amended the earlier Act, and established new procedures and milestones for the development of disposal facilities by states and regional compacts.

**Low-Level Radioactive Waste Trust Fund:** A trust fund established pursuant to Massachusetts General Laws. c.10, section 35H, which shall consist of surcharges collected from users of the LLRW facility in an amount determined by the Management Board on an annual basis.

**Management:** The storage, packaging, treatment, transportation, or disposal, where applicable, of LLRW.

**Management Act:** The State's Low-Level Radioactive Waste Management Act, Massachusetts General Laws c.111H, which became law in December, 1987.

**Management Plan (or Plan):** The Low-Level Radioactive Waste Management Plan adopted by the Management Board, after statewide public meetings, to provide for the safe and efficient management of LLRW.

**Massachusetts Environmental Policy Act (MEPA):** The Massachusetts law which lays out a process to ensure an open and deliberative review of all environmental impacts of a potential project, so that decisions may be made, and actions taken, to ensure environmental protection during project development, construction and completion. The MEPA review is conducted by the MEPA office of the Executive Office of Environmental Affairs

**M.G.L.:** The abbreviation for the "Massachusetts General Laws," which are the laws of the Commonwealth that have been adopted as statutes through the legislative process.

**M.G.L. c.111H (Chapter 111H):** The Massachusetts Low-Level Radioactive Waste Management Act.

**Mixed waste:** Low-level radioactive waste containing material that is (1) listed as hazardous material in regulations of the Massachusetts Department of Environmental Protection or the U.S. Environmental Protection Agency, or (2) causes the waste to exhibit any of the characteristics (ignitability, corrosivity, reactivity, toxicity) identified in regulations of DEP or EPA.

**Neighboring Community:** A community, other than a Site Community, which according to the most recent decennial census, has at least 20% of its population residing within three miles of any superior site.

**NRC:** U.S. Nuclear Regulatory Commission.

**Nuclear energy liability (NEL) insurance:** A type of third party liability insurance that covers bodily injury and off-site property damage caused by a "nuclear energy hazard."

**Nuclear Regulatory Commission (NRC):** The federal agency responsible for licensing and regulating commercial uses of radioactive materials. The NRC also assists the U.S. Department of Transportation in regulating the packaging and transportation of radioactive materials and waste.

**Occupational dose:** The exposure of an individual to radiation as a result of employment,

expressed In rems.

**Off site:** Beyond the boundary of the licensee's property.

**On site:** Within the boundary of the licensee's property.

**Operation:** The control, supervision or implementation of the actual physical activities involved in the acceptance, storage, treatment, disposal, or monitoring of LLRW at a facility, and the maintenance of the facility, and any other responsibilities of the operation pertaining to the facility.

**Operator:** A person designated in accordance with the procedures established in sections 22 and 27 of Chapter 111H to develop and operate an LLRW facility.

**Performance assessment:** A systematic analysis of the potential risks posed by waste management systems and the environment, and a comparison of those risks to establlshed safety requirements.

**Performance objectives:** Operational requirements that LLRW facilities must meet in order to be licensed.

**Person:** Any agency or political subdivision of the federal government or the Commonwealth, or of any state, any public or private corporation or authority, individual, firm, joint stock company, partnership, association, trust, estate, institution or other entity, and any officer, employee or agent of such person, and any group of such persons.

**Possible Location:** A location, identified in accordance with the statewide screening procedures in Chapter 111H, which will be the subject of preliminary characterization for the purpose of identifying candidate sites.

**Post-closure observation and maintenance:** The active monitoring and maintenance of a facility which has been closed in preparation for transfer of the facility's license from the operator to the Management Board.

**Property insurance:** Provides coverage for damage to property, such as buildings, equipment, etc.

**Property value protection district:** An area of land, identified in a Comprehensive Operating Contract executed pursuant to the provisions of Chapter 111H, which includes all land within one-half mile of the waste management area of a facility and may Include other land not more than one mile from the waste management area.

**Public Interest:** The common welfare, convenience, benefit, and necessity of the people of the Commonwealth, including public health, safety, and the environment.

**Public meeting:** A public hearing, satisfylng the requirements of Chapter 30A, Section 2, In whlch an agency presents information, responds to inquires, and hears testimony of interested persons.

**Public Participation Coordinator (PPC):** The person appolnted pursuant to section 6 of Chapter 111H to encourage and facilitate the participation of interested persons in all of the processes established in or pursuant to the Act, and to carry out the other duties prescribed in the Act.

**Radiation:** Alpha particles, beta particles, gamma rays, x-rays, neutrons, high speed electrons, high

speed protons, and other particles capable of producing ions. As used in this document, "radiation" does not mean non-ionizing radiation, such as radio or microwaves.

**Radioactive material:** Any solid, liquid, or gas which emits radiation spontaneously.

**Radioactivity:** The transformation of unstable atomic nuclei by the emission of radiation.

**Radionuclide:** An isotope that eventually undergoes spontaneous disintegration, with the emission of radiation.

**RCRA:** The federal Resource, Conservation and Recovery Act pertaining to the regulation of hazardous materials and waste.

**Regional Compact:** A legislatively-authorized contract between states. Compacts must be ratified by the Legislatures of the compact states, and by Congress.

**Region:** The geographic area comprised of party states to a compact.

**Retrievability:** The ability to recover waste in an intact container without substantial destruction of the engineered barriers surrounding the waste containers.

**Retrieval:** The recovery of waste in an intact container.

**Secretary:** As used in this program, the Secretary of the Massachusetts Executive Office of Environmental Affairs.

**Shallow land burial:** A land disposal method that relies on the site's natural characteristics as the primary barrier for isolation of the waste. Shallow land burial is a prohibited LLRW disposal technology under Massachusetts law.

**Short-lived radionuclides:** Radionuclides that decay rapidly.

**Site Community:** The community in which is located all or any part of any superior site.

**Source term:** An inventory of waste characteristics in the total waste stream, over the facility's operating life, and the quantities and forms released from the containment system over time.

**Stabilization:** Any process by which radioactive waste is made stable to physical, chemical, or biological degradation. Processes such as solidification, or certain packaging procedures, may result in stabilization.

**Storage:** The holding of LLRW for treatment or disposal.

**Storage for decay (or decay in storage):** A procedure in which LLRW with a relatively short half-life is held for natural radioactive decay in compliance with applicable federal and state regulations.

**Superior Site:** Any site selected by the Management Board, after detailed site characterization, pursuant to section 23 of Chapter 111H.

**Superior Site CSC:** The Community Supervisory Committee for the superior site selected by the Management Board, following detailed site characterization.

**Technical Site Screening:** Technical site screening is the three step process of progressively eliminating unsuitable areas and identifying suitable areas for an LLRW disposal facility by comparing statewide, regional, and site data to the site selection criteria established by DEP and others adopted by the Board.

**Technically Superior Site:** A technically superior site is any site that meets the minimum qualifications to be selected as a Superior Site if, after detailed site characterization, it does not exhibit any exclusion criterion; it does not exhibit any conditional criterion that cannot be ameliorated; and a performance assessment demonstrates that the site will meet DPH performance objectives.

**Treatment:** Any method, technique, or process, including source minimization, volume minimization, and storage for decay, designed to change the physical, radioactive, chemical or biological characteristics or composition of LLRW in order to render such waste safer for management, amenable for recovery, convertible to another usable material, or reduced in volume.

**Unaligned (or "unaffiliated" or "go-it-alone") state:** A state that chooses not to join a regional compact for LLRW disposal purposes.

**Waste management area:** That portion of a facility where low-level radioactive waste has been, is being or will be treated, stored or disposed of.

**Work Breakdown Structure:** A work breakdown structure (WBS) is a product-oriented hierarchical breakdown of the scope of work of a project. Principal project elements or tasks are divided into subtasks from which specific products can be defined and for which resources, schedules, costs, responsibilities, and interface requirements can be assigned. Principal project elements may be divided into several levels of subtasks.

# Section 1
# INTRODUCTION

## 1.1 Purpose

This plan describes the approach the Massachusetts Low-Level Radioactive Waste Management Board (the Board) will use in selecting a site, called siting, for a low-level radioactive waste (LLRW) disposal facility[1] in the Commonwealth.

## 1.2 Organization of this Document

Section 1 describes the scope of the Siting Plan, the background leading to the Board's decision to site a facility, and the statutory and regulatory basis for establishing a facility. Section 2 provides a step-by-step description of the process that will be followed in selecting a facility site. Section 3 describes the Management Board's approach to the facility siting process. Section 4 briefly summarizes post-siting activities. Appendix A is the Management Board's Draft Volunteer Sites Program Plan.

## 1.3 Scope

The Siting Plan describes the Management Board's program for selecting a Superior Site for an LLRW disposal facility, the integration of major program elements and their responsible parties, and the decision-making process and factors the Board will use to select such a site.

The Siting Plan is one of a series of plans that will describe major elements of the LLRW disposal facility life-cycle process. Other plans will describe facility licensing, development, operation, closure, post-closure observation and maintenance, and institutional control. In addition, detailed procedures will be developed for many project tasks. Many of these plans and procedures will be developed with contractor assistance or by the facility operator, and will be prepared prior to the implementation of their corresponding program element. Those plans and detailed procedures are beyond the scope of this Siting Plan.

## 1.4 Legislative Framework

### 1.4.1 Federal

The Low-Level Radioactive Waste Policy Act of 1980 (Public Law 96-573) and the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) require each state to manage LLRW generated within its borders either alone or, as part of a regional compact with other states. As a result of these federal mandates, ten multi-state compacts have been formed for this purpose. Five states, including Massachusetts, the District of Columbia, and Puerto Rico, are called unaffiliated (because they are not associated with any region) or "go-it-alone" players.

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[1] Provisions in Massachusetts law cause "disposal" to be analogous to very, very long-term storage. These provisions include a prohibition on shallow land burial of LLRW; requirements for waste monitoring and retrieval, if necessary; and precluding the Commonwealth from abandoning a disposal facility as long as any LLRW contains activity above maximum concentrations allowed to be released under federal and state law.

Other federal laws that significantly impact the LLRW disposal facility siting process include:

- The Atomic Energy Act, which created a framework for the commercial application, licensing, and regulation of the use of radioactive materials. (42 USC 2011 et seq)

- The Endangered Species Act, which was established to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved and to provide a program for the conservation of such species. (16 USC 1531 et seq)

- The Wild and Scenic Rivers Act, which recognizes that selected rivers possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or similar values, and that their free-flowing condition and immediate environs must be preserved for the benefit and enjoyment of present and future generations. (16 USC 1271)

- The Safe Drinking Water Act, which is intended to ensure that the public is provided with safe drinking water, and which requires EPA to specify maximum containment levels for contaminants (including radioactive materials) in public drinking water supplies that may have an adverse effect on human health. (42 USC 300f et seq.)

- The Historic Sites Act, whose purpose is to preserve for public use, historic sites, buildings, and objects of national significance for the inspiration and benefit of the people. (16 USC 461 et seq)

- The Resource Conservation and Recovery Act, which is intended to assist counties, cities, and states in the solution of the discarded materials problem; provide nationwide protection against the dangers of improper hazardous waste disposal; and initiate a cooperative effort among federal, state, and local governments and private enterprise to recover valuable materials and energy from solid waste. (42 USC 6901 et seq)

- The Water Pollution Control Act (Clean Water Act), whose objective and purpose is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters, and to establish means whereby comprehensive programs for water pollution control may be developed and implemented by the Environmental Protection Agency. (33 USC 1251 et seq)

1.4.2 State

The overall process for development of an LLRW disposal facility is outlined in the Massachusetts Low-Level Radioactive Waste Management Act, M.G.L. c.111H (Chapter 111H). The Act assigns regulatory and management responsibilities to several state agencies, the Site Community, Neighboring Communities, and Affected Communities. The Management Board has the lead role in managing LLRW in the Commonwealth. The Department of Public Health (DPH) is responsible for regulating all aspects of LLRW facility licensing, operation, performance, closure, post-closure observation and maintenance, and institutional control. DPH is the regulatory agency that will license and regulate a facility. The Department of Environmental Protection (DEP) is responsible for establishing criteria for the selection of a Superior Site, guidelines for criteria application, and procedures for the conduct of site selection. In addition, DEP conducts adjudicatory proceedings upon petition by anyone aggrieved by siting actions.

Massachusetts law expressly prohibits landfills or "dumps" for the disposal of LLRW, and

also requires that any disposal method include monitoring of the waste through the life of the facility, and retrieval, if necessary. Along with the monitoring and retrieval requirements, and the prohibition on landfills, state law contains another provision that results in LLRW "disposal" being analogous to very, very long-term "storage." This requirement pertains to the institutional control period for any facility. Chapter 111H requires that the institutional control period "shall not be less than the minimum time required for any LLRW present at the site to decay to the maximum concentrations above natural background levels permitted to be released into air or water in unrestricted areas under federal and state law."

The monitoring, retrieval, and institutional control duration conditions are all intended to ensure that state government never "walks away" from an LLRW disposal site, unless the site is free from radioactive contamination. For these reasons, a Massachusetts LLRW "disposal" facility is analogous to very, very long-term "storage."

Other state laws that significantly impact the LLRW disposal facility siting process include:

- The Massachusetts Environmental Policy Act (MEPA), which requires the state to review state-sponsored and state-permitted actions that have major environmental impacts (c.30, ss.61-62H).

- The Nuclear Power and Waste Disposal Voter Approval and Legislative Certification Act (c.164, Appendix, ss.3-1 to 3-9), which requires separate approvals by the Legislature and by voters in a statewide referendum before an LLRW facility can be sited in the Commonwealth.

- The Wetlands Protection Act (c.131, s.40), which requires the local Conservation Commission (and DEP, upon appeal) to establish an "order of conditions" for each proposal to remove, drill, dredge, or alter a wetland.

- The Clean Waters Act (c.21, ss.26-53), which prohibits the discharge of pollutants into the waters of the Commonwealth without valid state permits.

- The Hazardous Waste Management Act (c.21C), which gives DEP authority to regulate toxic, chemical hazardous waste, including mixed waste that contains both radioactive and hazardous components, or exhibits their characteristics.

## 1.5 Regulatory Framework

The regulatory responsibility over an LLRW disposal facility is assigned to the U.S. Nuclear Regulatory Commission (NRC), unless transferred to a state under the Agreement State program. State and local requirements impact LLRW facilities as described below.

### 1.5.1 Federal

NRC regulations for the licensing of an LLRW disposal facility are contained in Title 10 of the Code of Federal Regulations, Part 61 (10 CFR 61). In addition, NRC has published several guidance documents regarding the licensing process for such a facility. These include:

- Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal Facility, NUREG-1199.

- Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility, NUREG-1200.

- Standard Format and Content of Environmental Reports for Near-Surface Disposal of Radioactive Waste, Regulatory Guide 4.18.

- Environmental Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility, NUREG-1300.

- Quality Assurance Guidance for a Low-Level Radioactive Waste Disposal Facility, NUREG-1293.

1.5.2 State

Pursuant to federal law that enable states to assume regulatory authority over certain activities involving the use of radioactive materials (including LLRW disposal facilities), Massachusetts has applied to NRC for this responsibility, known as the "Agreement State" program. Accordingly, the state has developed appropriate regulations to govern the control of radioactive materials and LLRW. State regulations for LLRW disposal are embodied in the Code of Massachusetts Regulations as 105 CMR 120.800, Licensing and Operational Requirements for Low-Level Radioactive Waste Facilities. The disposal regulations are compatible with the NRC regulations in 10 CFR 61, although they contain additional requirements.

In addition to DPH "Agreement State" regulations and LLRW disposal regulations, the following state regulations (specifically related to LLRW management) will impact the siting of an LLRW disposal facility:

- Site Selection Criteria for Low-Level Radioactive Waste Management Facilities (310 CMR 43.00), DEP regulations that establish the criteria and procedures to select sites for LLRW storage, treatment, and disposal facilities.

- The Selection of Operators (345 CMR 3.00), the Management Board's regulations that govern the criteria and procedures for selection of an LLRW facility operator by a Site Community.

- Low-Level Radioactive Waste Management Plan (345 CMR 1.00), the Management Board's regulations that set forth the regulatory components of, or pertaining to, the Board's Low-Level Radioactive Waste Management Plan. The regulations include sections pertaining to the Volunteer Sites Program and Technical Assistance Grants for Community Supervisory Committees.

1.5.3 Local

Because municipal by-laws and ordinances pertaining to LLRW or radioactive materials safety are generally preempted by state and federal laws and regulations, regulatory control at the local level is dependent upon the relationship of municipal government to a disposal facility site. For example, a local community that serves as a Superior Site Community can establish certain contractual obligations through the Comprehensive Operating Contract negotiated between the Management Board and the facility operator, with the community involved as a third-party beneficiary. A community not involved in a facility site, however, may have no such control. In general, local communities are primarily involved through participation in planning activities, review

of site-related documents and site work, and involvement in facility monitoring programs.

### 1.6 Need to Provide Disposal Capacity

Chapter 111H, requires the Low-Level Radioactive Management Plan to contain a finding on "whether there is a requirement for additional (storage, treatment or disposal) facility capacity to meet present low-level radioactive waste management needs or needs anticipated to arise within the next decade." The finding of a need for additional facility capacity must have been made for the Management Board to consider siting an LLRW storage, treatment, or disposal facility within the Commonwealth. Without such a finding, no siting may occur.

The Board determined that a disposal facility is needed for approximately 20,000-25,000 cubic feet of LLRW expected to be generated annually in the Commonwealth, plus approximately 450,000 cubic feet of waste that will result from the decommissioning of nuclear power plants and the premises of other radioactive material users. In addition, the Board recognized that out-of-state disposal capacity would not be available in the near future. The Board's evaluation is documented in the Low-Level Radioactive Waste Management Plan, published in January, 1994. After weighing the LLRW management options detailed in that Plan, the Board voted on February 16, 1994, to initiate a search for a Massachusetts disposal site. Although previous efforts to arrange disposal capacity outside of Massachusetts had not yet proved fruitful, the Board agreed to continue pursuing out-of-state disposal options in parallel with its in-state siting program.

### 1.7 Public Participation in the Siting Process

The public will play a significant role throughout the siting process in reviewing and commenting on all major facility siting reports. Several formal review periods and hearings on Board documents and decisions are planned throughout the process. Candidate and Superior Site Communities, have important participatory roles, as well. Candidate Site Communities will assist in planning the detailed characterization of Candidate Sites. Superior Site Communities will select the facility operator and disposal technology, will negotiate compensation (beyond that mandated by Chapter 111H) with the facility operator, and will participate in monitoring the facility.

The Board has made a strong commitment to meaningful public participation in all phases of its programs, beyond the public participation requirements of Chapter 111H. Many of the public's activities and responsibilities, and their integration into the siting process, are summarized in this plan, and are described in greater detail in the Board's Public Participation Plan. Some statutory provisions include:

- The Board, through its Public Participation Coordinator, is obligated to implement public education initiatives with respect to LLRW management and the hazards associated with LLRW and its improper management.

- Citizens of Candidate Site Communities, through their local Community Supervisory Committees (CSCs), have important responsibilities in assisting the Management Board in developing plans for detailed site characterization, and in facility monitoring.

- Site Communities (through their CSCs) have decision-making roles in selecting the facility operator and the disposal technology to be used at the Superior Site.

- Any person aggrieved by certain actions taken to site a facility may ask the Commissioner

of the Department of Environmental Protection to conduct an adjudicatory proceeding concerning the selection of a Superior Site.

1.8 Funding the Siting Process, Facility Construction, Operation, Closure, and Institutional Control

The costs associated with an LLRW disposal facility will be paid by funds derived from the issue of state bonds. The principal and interest on these bonds will be repaid to the state by the users of the disposal facility.

Facility user fees also will be collected to reimburse the facility operator for:

- All reasonable expenses of facility development and operation, including the costs of premature facility closure and decommissioning.

- All reasonable community compensation guaranteed to the Superior Site, neighboring, and Affected Communities in the Comprehensive Operating Contract executed between the Management Board and the facility operator (with Site, Neighboring, and Affected communities involved as third party beneficiaries). Statutorily-required compensation includes annual payments to the Site Community based on facility volume; property tax payments to offset losses from state land removed from the local tax rolls; and $150,000 to the Site Community for each year the facility accepts LLRW within a five-year period that begins once the facility is licensed.

  In addition,if the Superior Site was a volunteered site, compensation also would include the extra financial guarantees provided in the Volunteer Sites Program. Details of complete compensation provisions can be found in the Volunteer Sites Program Plan (Appendix A) and in Chapter 111H.

- An annual payment to DPH to cover the expected DPH operating budget for the next fiscal year for its activities with respect to the facility, including DPH's environmental monitoring program.

- A reasonable profit from the operation of the facility.

- Surcharges to fund the Low-Level Radioactive Waste Trust Fund. This fund will pay compensation for injuries to persons, land, or property that may result from the management of LLRW at the facllity, and for the costs of institutional control.

## Section 2
## THE FACILITY SITING PROCESS

### 2.1 General Siting Requirements

LLRW disposal facility siting requirements are found in the Massachusetts Low-Level Radioactive Waste Management Act, M.G.L. c.111H (Chapter 111H), and in the policies and regulations adopted by the Management Board, DPH, and DEP pursuant to those requirements.

#### 2.1.1 Requirements of the Massachusetts Low-Level Radioactive Waste Management Act, Chapter 111H

Massachusetts General Law, Chapter 111H (Chapter 111H) provides the statutory foundation for LLRW facility siting in the Commonwealth. The Act includes detailed requirements for the technical site screening[2] process, detailed site characterization of Candidate Sites, selection of a site operator and facility technology, licensing, operation, closure, post-closure observation and maintenance, institutional control, financial assurance, environmental monitoring, and public participation. The siting process specified in Chapter 111H is included in the step-by-step procedures described in this section of the Siting Plan. The post-siting process is described briefly in Section 4 and in greater detail in Chapter 111H and 105 CMR 120.800.

#### 2.1.2 Policies of the Massachusetts Low-Level Radioactive Waste Management Plan

In addition to the siting requirements of c.111H, the Management Board adopted various policies relating to disposal facility siting in its LLRW Management Plan. These policies include a Volunteered Sites Program; property value guarantees; the adequacy of the NRC's radiation dose limit for an LLRW disposal facility (25 millirem); additional provisions for public participation (beyond those required by Chapter 111H); a "total hazard" classification system that requires detailed characterization of all LLRW to allow appropriate management and disposal practices (including site selection and facility design); alternatives for mixed waste disposal; a transportation risk analysis; a strategy against conventional incineration; assistance to Candidate Site communities to evaluate disposal technologies; and disposal facility design to allow LLRW segregation by short and long radioactive half-life.

Management Board policies relevant to facility siting are integrated into the step-by-step procedures described in this section. Many of these policies have been codified in the regulations referenced throughout the Siting Plan. Additional information about these and other Management Board policies can be found in the Low-Level Radioactive Waste Management Plan and in these regulations.

### 2.2 Notification of the Initiation of Siting

An important aspect of public participation is notification to individual and group stakeholders.

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[2] Technical site screening is the three step process of progressively eliminating unsuitable areas and identifying suitable areas for a LLRW disposal facility by comparing statewide, regional, and site data to the site selection criteria established by DEP and others adopted by the Board.

2.2.1 Official Notification of Municipalities and Others

The Management Board notified the Chief Executive Officer of every municipality in the Commonwealth, as required by the Chapter 111H, of the Board's decision to commence the disposal facility siting process. The Management Board also notified every community's Chief Elected Official, statewide newspapers, radio and television stations and other media outlets.

In addition, the Management Board will formally invite other states interested in negotiating the possibility of their LLRW generators gaining access to a Massachusetts site, if the Massachusetts site is to be used as a regional facility. If such a determination is made, discussions with other states will include such topics as the percentage of facility siting costs that each state would be willing to fund, and the terms and conditions of a regional compact or contractual agreement.

2.2.2 Availability of Board Members and Staff

The Board's Public Participation Coordinator and other Board staff will continue to augment activities of Board members to attend meetings, conduct workshops, brief federal and state legislators and local officials, and generally to speak to interested groups about the disposal facility siting process, answer questions, and listen to public concerns.

2.2.3 Announcement of a Volunteer Sites Program

The Board has initiated a Volunteer Sites Program to solicit and encourage communities to volunteer sites for consideration. This program represents a companion and supplementary program to the technical screening program that is required by statute, and is codified in 345 CMR 1.82. The volunteer program will be conducted under specific regulations (345 CMR 1.83) and procedures described in the Volunteer Sites Program Plan (see Appendix A). Any site volunteered and accepted by the Board for consideration and detailed evaluation must be consistent with the site selection criteria for any site. These include those specified by DEP, in 310 CMR 43.00, additional site selection criteria adopted by the Board (refer to Section 3) and applicable procedures. The Volunteer Sites Program and the general approach to the integration of this program with other siting tasks is discussed later in this plan.

As part of the notification to municipal officials and others of a decision to initiate siting for a disposal facility, the Management Board informed community leaders of the "voluntary" siting stage of the process, and encouraged them to participate. After the Board completes its first statewide technical screening to eliminate potentially unsuitable areas of the Commonwealth, and issues its Statewide Mapping and Screening Report, all municipalities with lands still under consideration will receive another notice of the Voluntary Sites Program, as well as information about the availability of compensation and facility impact funds, and will be encouraged to volunteer sites. In addition, municipalities will receive information about the availability of Independent Study Grants to assess the impacts of having an LLRW facility in the community. Any volunteered sites will continue to be evaluated with respect to DEP siting criteria. Any volunteered sites which fail the environmental screening process will be eliminated from consideration. The Draft Volunteer Sites Program Plan is contained in Appendix A.

## 2.3 Determining the Type and Size of the Disposal Facility

LLRW disposal facilities can vary in size, depending on the volume of waste accepted at the site, the size of the "buffer zone" around the waste management area, the technology used at the facility (i.e.,

above-ground vaults vs. below-ground vaults, for example), the segregation of waste by short and long half-life (see Section 2.12), and other factors. Another factor determining facility size is the "type" of facility, namely a regional facility that accepts waste from one or more states outside Massachusetts, or a "Massachusetts-only" site.

2.3.1 A Regional or "Massachusetts-only" Facility

Four disposal facility siting options are described in Chapters 13 and 15 of VOLUME II of the Management Plan. The facility site sizes developed for these options were based on several assumptions regarding parameters such as facility operating life, type of disposal technology, and buffer zone size. The Management Board will consider each option, and choose among them or some variation. The four facility size options are:

- Site a disposal facility for Massachusetts-only LLRW (approximately 35,000 cubic feet per year).
- Site a disposal facility for Massachusetts-only LLRW (approximately 50,000 cubic feet per year).
- Site a small regional disposal facility that will handle LLRW from Massachusetts and one or more neighboring states (approximately 80,000 cubic feet per year).
- Site a large regional disposal facility to accommodate LLRW from the New England states as well as other states searching for disposal options (approximately 467,000 cubic feet per year).

If a decision is made to site a regional disposal facility, all or a prominent portion of the costs of the siting process will come from the non-host states selected to utilize the disposal site in the Commonwealth.

2.3.2 Compacting or Contracting

If the Management Board makes a decision to site a regional facility, the Commonwealth will have to decide whether all party states that would use the regional site would be legally bound through a regional "compact" or through a "contract." In the case of a "compact," all participating states' Legislatures would have to adopt an identical law establishing the rights and obligations of the host and party states; that law would then require approval by Congress. If a decision were made to enter into a "contractual" agreement with other states, rather than to follow the "compact" route, legal decisions would be necessary to develop and implement a workable contract.

## 2.4 Choosing the States to Join a Regional Facility

If the Management Board determines that a regional disposal facility should be sited within the Commonwealth, after evaluating the legal implications of compacting or contracting and choosing one of those options, the Board will select the states with which to enter into a compact or contractual association. The Board's decision may also be impacted by discussions with Volunteer Site or Candidate Site Communities. Compact legislation would be prepared for submission to each state's Legislature, or contract documents prepared, while site identification activities were under way.

## 2.5 Site Selection

The process to identify a Superior Site for any LLRW disposal facility is a slow and deliberative one, spanning several years, and initially involving the entire state.

### 2.5.1 Overall Approach to Site Selection

Two approaches will be taken to site selection:

- A statewide technical screening program.
- A volunteer siting program.

The technical screening program will consist of three basic steps as required by Chapter 111H: Statewide Mapping and Screening (exclusionary screening); identification of Possible Locations that may contain one or more potential sites; and the selection of two to five Candidate Sites for detailed characterization.

Regulations adopted by the Massachusetts Department of Environmental Protection (DEP) establish criteria for the selection of a technically superior site for an LLRW management facility, guidelines for application of the criteria, and procedures for the conduct of site selection. The selection criteria encompass 10 main categories:

- Water resource protection
- Geology
- Demography
- Site size and facility compatibility
- Potential adverse affects from release of radionuclides
- Meteorology and climatology
- Transportation
- Land use
- Air quality
- Protected land and resources

Within each category, different evaluation factors are to be used to measure site suitability. Site characteristics are to be evaluated under three categories:

- Exclusion Criteria: The presence of an exclusion characteristic bars a location from being selected.
- Conditional Consideration Criteria: A conditional consideration may be present if it is likely to be resolved at a later period in the facility development process, or if it can be demonstrated to be insignificant in light of factors particular to that location.
- Preference Criteria: The extent of a site's preferential characteristics may be weighed by the Board in making its final selection. In every category, preferred sites are those more likely to protect public health, safety, and the environment.

The Volunteer Sites Program will augment the screening process. Volunteer sites will be solicited after lands have been excluded by Statewide Mapping and Screening. It is anticipated that the implementation of the Volunteer Sites Program will require up to two years. Work to identify Possible Locations and Candidate Sites will not begin until the end of the Volunteer Sites Program.

2.5.2 Retaining Siting Consultants

Consultants will be hired by the Management Board, as necessary, to conduct the technical screening components of site selection. Consultant selection will be competitive and follow state procurement regulations.

A Statewide Mapping and Screening contractor will be hired for the initial statewide exclusionary screening task. After the Volunteer Sites Program has been implemented for a reasonable period of time (up to two years), a siting contractor will be hired to assist the Board with remaining site selection and other pre-licensing activities.

2.5.3 Excluding Portions of the State by Statewide Mapping and Screening

Statewide screening will be conducted by the Statewide Mapping and Screening contractor in accordance with a "Statewide Mapping and Screening Procedure" and related procedures developed by the contractor. This initial statewide screening step will identify and exclude from further consideration in the site selection process those areas of the Commonwealth that are obviously unable to satisfy the site selection criteria specified in the DEP site selection criteria regulations.[3]

The Statewide Mapping and Screening step will be conducted with MassGIS, and existing databases as required to supplement MassGIS. MassGIS is the Commonwealth's computerized geographic information system established and implemented by the Executive Office of Environmental Affairs. MassGIS contains a comprehensive compilation of data on numerous geologic, hydrologic, environmental, demographic, and infrastructure characteristics of the Commonwealth. Data is stored in electronic digital format (digitized) for analysis and manipulation with the computer system.

Statewide Mapping and Screening will use only available digitized data that can be analyzed and mapped on a statewide basis. The entire state will be evaluated during this initial screening step, making it necessary to apply data that can only be observed at large, statewide map scales. Since some exclusion criteria can only be applied to smaller parcels of land, at more definitive map scales, some exclusion criteria cannot be applied at the Statewide Mapping and Screening stage. Therefore, this initial screening step may not identify each parcel of land that may possess an exclusionary criterion. Similarly, some parcels of land may inadvertently be excluded at this stage because they cannot be adequately distinguished from areas that appear, at the large statewide map scales, to contain exclusion characteristics. Although lands excluded By Statewide Mapping and Screening will not be considered further, the application of additional exclusion criteria at later screening stages may exclude additional lands.

The Statewide Mapping and Screening contractor will provide the Board with a Statewide Mapping and Screening Report containing the results of the Statewide Mapping and Screening task.

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[3] The intent of each stage of environmental screening is to exclude from further consideration areas that appear not to meet the siting criteria. It should be noted, however, that in the situation that would require the Board to start the siting process anew, the potential exists that areas which were "excluded" once may not be excluded the second time around.

2.5.4 Public Review of Statewide Mapping and Screening Report

The Statewide Mapping and Screening Report will be issued for public review and comment at five statewide public meetings. Comments will be evaluated, and applied as appropriate, in the Possible Locations screening stage.

2.5.5 Volunteer Sites Program

The Management Board adopted a policy in the LLRW Management Plan in favor of encouraging volunteered sites as an additional component to the technical screening siting mechanism required by Chapter 111H. Voluntary siting programs have been successful in other states and countries, and result in a more public participatory process.

2.5.5.1 Steps in the Process to Encourage Volunteer Sites

The Volunteer Sites Program will be implemented after public review of the Statewide Mapping and Screening Report. The remaining steps of the three-step technical screening process will be temporarily delayed after the Statewide Mapping and Screening Report is issued, and for the duration of the Volunteer Sites Program.

The Volunteer Sites Program consists of several steps, which are detalled in the Draft Volunteer Sites Program Plan (Appendix A). The steps are summarized below.

- Announcements about the Volunteer Sites Program will be made to municipal officials and the public with the notice of the beginning of Statewide Mapping and Screening.

- The Management Board will provide public information and opportunities for public participation (e.g., written material, meetings, and public discussions about LLRW, its management, and the Volunteer Sites Program) during Statewide Mapping and Screening.

- Upon completion of public meetings to discuss the Statewide Mapping and Screening Report, the Management Board will escalate its activities to provide information to the public, promote public participation, and to encourage expressions of potential interest in volunteering sites.

- Any landowner considering the possibility of volunteering a site will submit an Expression of Potential Interest Form containing information about the site and a certification that a copy of the form was transmitted to the municipality's Chief Executive Officer (CEO). (At this point, the site is not officially a volunteer site; this step reflects only an expression of interest in pursuing the volunteer siting process.)

- Volunteer sites that fall within areas excluded by Statewide Mapping and Screening or do not meet DEP exclusionary criteria at any step in the process will not be considered further.

- The Management Board will contact CEOs of municipalities containing sites for which Expression of Potential Interest Forms have been submitted, and offer to meet with local officials to discuss the community's participation in the Volunteer Sites Program.

- Grants will be available to municipalities to conduct independent reviews of the impacts of an LLRW facility within their communities.

- Discussions will be held about community compensation and impact payments, schedules, and procedures for making decisions to remain in the volunteer program, or to discontinue participation.

- Public meetings will be held in communities where an expression of potential interest has been made, to provide information and ensure public participation.

- Negotiation of a Volunteer Site Agreement will be conducted identifying compensation and impact payments that the municipality would receive, pending other actions resulting in the site's selection as a Superior Site, and facility operation.

- A townwide referendum will be held to obtain local approval or rejection of each volunteered site and Volunteer Site Agreement.

- If the referendum vote is for approval, the Volunteer Site Agreement will take effect.

- If the local referendum approves the volunteered site, the Management Board will evaluate that site through the Possible Locations and Candidate Site identification technical screening stages. From this point forward, any volunteered site will be evaluated in the same fashion that any sites selected by the technical screening process will be evaluated.

- The Management Board will issue a Draft Candidate Site Identification Report identifying the most promising sites from those volunteered and those identified (if necessary) from the technical screening procedures. Public hearings will continue to be held.

- Detailed site characterization will be conducted over four seasons on all Candidate Sites. Following issuance of a Draft Detailed Site Characterization Report for public review and comment, the Management Board will vote to accept, amend, or reject the report, and may vote to select a Superior Site from a locally approved volunteered site.

### 2.5.6 Identifying Possible Locations

The second technical screening stage required by state law, evaluates all lands not excluded from the Statewide Mapping and Screening stage, to identify areas that could contain one or more Candidate Sites. Locations identified in this stage must appear likely to satisfy DEP's site selection criteria, 310 CMR 43.00, using data obtained by the Board.

#### 2.5.6.1 Retaining the Services of a Siting Contractor

Prior to completing the Volunteer Sites Program phase of the siting process, a siting contractor will be retained by the Management Board to complete the remaining technical steps of the site selection process. The siting contractor will develop appropriate procedures, including a Possible Locations and Candidate Sites Selection Procedure, to guide the performance of this work. The database on exclusionary variables generated during Statewide Mapping and Screening and remaining MassGIS data will be transferred to the siting contractor's GIS and updated by the siting contractor throughout the remaining screening steps. Additional data will be used and new data will be gathered and added during the Possible Locations screening, preliminary characterization, Candidate Site screening, and detailed site characterization stages described below.

2.5.6.2 Integrating Volunteer Sites with the Possible Locations Screening Step

After any Volunteer Site Agreements are executed or in the absence of any volunteer sites, the Possible Locations screening step will be initiated to:

- Evaluate volunteer sites with respect to exclusion and conditional criteria to determine if they can be carried forward for further consideration. The Possible Locations screening step will apply exclusion criteria at more definitive map scales than were used during the Statewide Mapping and Screening step, and will evaluate the volunteer sites with respect to other available data.

- Obtain additional Possible Locations that may contain suitable sites in the event that an insufficient number of sites are volunteered or if volunteered sites are determined unsuitable from the investigations conducted during this step.

2.5.6.3 Screening for Possible Locations

Using the areas in the state that remain under consideration in the Statewide Mapping and Screening Report, the Management Board and its siting contractor will identify Possible Locations that are likely to contain one or more Candidate Sites and evaluate the suitability of volunteered sites. A GIS and other relevant tools will be used for the Possible Locations screening. Detailed data based on more definitive map scales, as well as data from other sources, including local records, will be used. In addition, conditional consideration criteria will be applied at this stage. Since digitized data for every criterion may not be uniformly available for all areas of the state, the contractor will, with the Board's concurrence, obtain the necessary available source maps or data and digitize them for use in the contractor's GIS, along with available MassGIS database layers.

A Possible Locations Report will be issued identifying the potential locations that appear to satisfy the site selection criteria, and describing the procedures used to identify such locations. The report also will address the evaluation and potential suitability of volunteered sites based on the site selection criteria applied during this step and other data obtained on these sites.

2.5.7 Public Review of Possible Locations Report

At least two public hearings will be conducted in the vicinity of each Possible Location identified in the Possible Locations Report, including communities with volunteered sites still considered potentially suitable. The notice of the public hearing will be sent to each municipal Chief Executive Official and Chief Elected Official whose communities fall within the Possible Locations or potentially suitable volunteer site communities, and will explain siting and other LLRW management activities. The Board will consider and evaluate all comments, both from the public hearings and those submitted in writing.

2.5.8 Identifying Candidate Sites

2.5.8.1 Integrating Volunteer Sites with the Candidate Sites Screening Step

After publication and acceptance of the Possible Locations Report, the Candidate Site selection step will be initiated. Volunteer sites remaining after Possible Location evaluations will be carried forward for evaluation during the Candidate Site Selection step. All site selection criteria will be applied at this stage to evaluate the suitability of volunteer sites, and to identify

additional sites for consideration as Candidate Sites.

Volunteer sites will be compared to the potential Candidate Sites that are identified by this screening step. Using its decision-making process (described in Section 3.4), the Board will select two to five Candidate Sites for detailed site characterization. Volunteer sites may be selected for consideration only if they meet DEP site selection criteria and are likely to meet DEP standards for a Technically Superior Site.

2.5.8.2 Screening for Candidate Sites

The Board's siting contractor will collect available data required to identify two to five Candidate Sites in the Commonwealth from areas identified in the Possible Locations Report or from volunteered sites that are considered likely to meet the DEP siting criteria in 310 CMR 43.00 and DPH performance requirements in 105 CMR 120.800. Since digitized data for every criterion may not be uniformly available for all areas of the state, the contractor will, with the Board's concurrence, obtain the necessary available source maps or data and digitize them for use in the contractor's GIS. Additional confirmatory data will be gathered by limited reconnaissance or on-site observation and the review of local records.

Using the GIS and selection techniques outlined in the Possible Locations and Candidate Site Selection Procedure, the siting contractor will apply all site selection criteria to evaluate the areas identified in the Possible Locations Report. This screening and selection effort is expected to identify a number of promising sites that meet site selection criteria acceptance standards established in the Possible Locations and Candidate Site Selection Procedure and that appear likely to meet DEP standards for a Technically Superior Site.

Chapter 111H and 345 CMR 1.85 require that the selection of two to five Candidate Sites be made with the assistance of data collected from a preliminary characterization of sites considered most promising as possible Candidate Sites. In accordance with 345 CMR 1.85, the Board's siting contractor will plan and conduct a preliminary characterization of the meteorology, surface and groundwater, geology, tectonics, geomechanics, air quality, ecology, land use, cultural resources, and social and economic characteristics of each area considered as a possible Candidate Site. In addition to providing more definitive data with which to make a selection of two to five Candidate Sites, a primary objective of the preliminary characterization program is to expose fatal flaws in possible Candidate Sites that might immediately disqualify a site prior to detailed site characterization.

The siting contractor will draft a detailed plan and procedures for the preliminary characterization of each area and volunteer site considered as a possible Candidate Site. A practical preliminary characterization program will be implemented that provides data not otherwise available, while keeping cost and schedule impacts to reasonable levels.

The Board and the siting contractor will evaluate the results of site screening using the GIS, observations from site walkovers, analysis of local data and other considerations, and the results of preliminary characterization. Using the methodology outlined in the Possible Locations and Candidate Site Selection Procedure, the Board will identify between two and five Candidate Sites (possibly including volunteer sites) which initial data suggest will best satisfy the site selection criteria, will be potentially licensable, capable of being developed, available at reasonable cost, and otherwise appropriate to undergo detailed site characterization.

A Draft Candidate Sites Identification Report will document the identification of Candidate

Sites, and describe the procedures used to select them. The report will also contain draft plans for detailed site characterization of each Candidate Site.

2.5.9 Public Review of Draft Candidate Sites Identification Report

The draft report will be publicized widely for public review and comment, and at least two public hearings will be held in each Candidate Site Community. The Board will consider and evaluate all comments, both from the public hearings and those submitted in writing, prior to accepting the Draft Candidate Sites Identification Report.

2.5.10 Transmission of Draft Candidate Sites Identification Report to EOEA Secretary

At the same time that the Management Board releases the Draft Candidate Sites Identification Report for public review and comment, the Board will transmit a copy of the report to the Massachusetts Secretary of the Executive Office of Environmental Affairs (EOEA). The Secretary will implement the public review and comment procedures required by the Massachusetts Environmental Policy Act (MEPA), and will issue a statement evaluating the draft report's technical adequacy and conformance with the DEP siting criteria regulations applicable to LLRW facilities.

2.5.11 Notification to Candidate Site Communities

The Board and the Commissioner of the Division of Capital Planning and Operations (DCPO) will jointly provide a notice to all persons entitled to receive such notices for each city or town in which the real property is located (the City Manager in the case of a city under Plan E form of government, the Mayor and the City Council in the case of all other cities, the Chairman of the Board of Selectmen in the case of a town, the County Commissioners, and the regional planning agency of each community in which is located all or part of a Candidate Site identified in the Draft Candidate Site Identification Report, and the members of the General Court).

No person owning property identified in the Draft Candidate Site Identification Report can take any action or cause any action to be taken, prior to the acceptance or amendment of such report by the Board, to interfere with or render the conduct of detailed site characterization or the acquisition of a property interest therein more difficult or expensive.

2.5.12 Management Board Determination on Draft Candidate Sites Identification Report

The Management Board will vote to accept or amend the Draft Candidate Sites Identification Report and proceed to conduct detailed site characterization of the Candidate Sites identified in the report, as accepted or amended. If the Board votes instead to reject the draft report, it will repeat the earlier steps in the siting process to identify new Candidate Sites. The Board is required to vote to accept the entire report, or an amended version, before proceeding with detailed site characterization.

2.5.13 Additional Public Notification to Candidate Site Communities

If the Management Board votes to proceed with detailed site characterization, the Board will send copies of the Candidate Sites Identification Report to all municipal libraries of Candidate Site and nearby communities.

2.5.14 Property Value Protection Pledge for Property Owners Near Candidate Sites

The Management Board's property value protection program becomes effective and is designed to ensure that property owners near all Candidate Sites will receive a pledge of protection from property value loss if this Candidate Site nearby becomes a licensed facility and they sell their property within five years after the facility is licensed.

As of the date the Management Board votes to accept the Candidate Sites Identification Report, property owners within a half-mile radius of any waste management area identified within each Candidate Site will receive a pledge notice from the Board explaining that, if the site were chosen and licensed for the development of a facility, their property would automatically be included within a "Property Value Protection District" surrounding the Candidate Site. In addition, property owners outside the one-half mile radius but within one mile of any waste management area identified within each Candidate Site will be eligible to have their property considered for inclusion within the Property Value Protection District, by determination of the Management Board, with the advice of the Community Supervisory Committee of each Candidate Site.

Once a Superior Site has been licensed, the owner of any property identified within the Property Value Protection District of the Superior Site will be entitled to receive a payment from the facility operator, equal to the lost value that the property would have had, but for the location of the facility. The guarantee will cover all properties sold after the adoption of the Candidate Sites Identification Report, and will extend five years after the facility is licensed.

2.5.15 Acquiring a Determinable Property Interest in Each Candidate Site

If the Management Board votes to conduct detailed site characterization, the Commonwealth will take action to acquire a determinable property interest in each Candidate Site, or, if the Candidate Site is property owned by the Commonwealth, to transfer the control and use of such property to the Management Board. The property interest must be adequate to permit the conduct of detailed site characterization, and to restrict the right to develop the property until a facility license is issued.

2.5.16 Establishing Community Supervisory Committees

At the same time that the Draft Candidate Site Identification Report has been issued for public review and comment, the Management Board will request that the Chief Executive Officer (CEO) of each community in which is located all or a part of a Candidate Site, establish a Community Supervisory Committee (CSC) for each community. If a CSC is not appointed by the CEO, the Management Board will designate a committee to assume the CSC's responsibilities until a CSC is established.

2.5.17 Overall Responsibilities of Community Supervisory Committees

CSCs are established after Candidate Sites are identified, but before detailed site characterization is initiated. CSCs provide the vehicle for direct citizen involvement and community participation in the siting process from the time a site is identified as a Candidate Site through selection of a Superior Site.

CSC membership represents the community's concerns over environmental protection, public health, community values, and local planning and management. The CSC is composed of the Chief Executive Officer or his designee; the chairpersons or their designees of the local Conservation Commission, Board of Health, and Planning Board; and three community residents.

2.5.17.1 Participation in Siting, Environmental Review, and Licensing Activities

CSCs will represent the interests of the Candidate Site communities in the site selection process. Upon selection of any Superior Site within the community, the CSC will represent the best interests of the Site Community in the environmental review of, and licensing proceedings for the facility to be developed at that Superior Site.

2.5.17.2 Selection of Facility Operator and Disposal Technology by the Site Community

The CSC of the Superior Site Community (or communities if the site is situated in more than one community) will select the facility operator and the disposal technology for the Superior Site. This selection process will begin with interviews conducted by each Candidate Site CSC (prior to the designation of a Superior Site) of all Certified Operator Applicants. These interviews will enable the CSCs to negotiate agreements on community compensation and other arrangements beneficial to the Site Community which would be incorporated into the Comprehensive Operating Contract.

2.5.17.3 Monitoring Facility Operations

Upon licensing and construction of the facility, the CSC will represent the interests of the Site Community in monitoring and reviewing facility operations.

2.5.18 Using Technical Assistance Grants

The Management Board will make technical assistance and planning funds available to CSCs to allow Candidate Site Communities (and later Superior Site Communities) to obtain the necessary assistance to participate in site selection and characterization and to review the Board's work. Regulations pertaining to technical assistance and planning funds are codified in 345 CMR 1.88.

The regulations permit the Management Board to provide up to $100,000 per year to each CSC during the siting process. The grants may be used to enable the CSCs to acquire administrative and clerical personnel, to retain consultants necessary to exercise the powers and duties of the CSCs as established by Chapter 111H, and for related costs as approved by the Management Board. Consultants may be funded from the yearly grants for any purpose related to evaluating local impacts of the siting program, with two exceptions. They may not be retained for litigative purposes, nor may they conduct independent on-site investigations, unless a similar investigation has not been performed by the Management Board, and the Board specifically approves such investigation.

## 2.6 Obtaining and Certifying Facility Operator Applicants

Chapter 111H requires that contractors interested in becoming disposal facility operators be involved in the planning of the detailed characterization of Candidate Sites. In addition, the Act specifies that the CSC of the Superior Site Community select the site operator and disposal technology for the facility. The steps in the process for obtaining contractors interested in operating the facility are described in this section. The selection of the operator and technology by the Superior Site CSC is described in section 2.13.

2.6.1 Issuing an RFP for Facility Development, Operation, Closure, and Post-Closure Observation and Maintenance

The Management Board will issue a request for proposals (RFP) for the development, operation, closure, and post-closure observation and maintenance of a disposal facility. Companies responding to the RFP will be required to pay the Management Board a fee of not less than $10,000 at the time they submit responses to the RFP, and to specify how they will participate in a certified Operator Applicant Advisory Board to assist in the planning and implementation of detailed site characterization.

2.6.2 Attorney General's Investigative Report on Each RFP Respondent

The state Attorney General will submit to the Management Board and all CSCs a report on his investigation of each company applying for consideration to develop, operate, and close a disposal facility. The report will describe each company's record of compliance with environmental and related laws, regulations, permits, and licenses, both inside and outside of Massachusetts.

2.6.3 Certification Process for Applicants for Facility Operator

Upon the issuance of the Draft Candidate Site Identification Report, the Management Board will certify those applicants for consideration as facility operator that satisfy the Management Board's regulations pertaining to financial, technical, and management criteria for operator selection.

2.6.3.1 Financial Criteria for Certification

The Board will review the financial stability and resources of all potential facility operator applicants with respect to the criteria specified in the Operator Selection regulations, 345 CMR 3.00. In order to be eligible for certification, an applicant must demonstrate that it has sufficient financial resources or is capable of obtaining sufficient financing to construct, operate, and maintain an appropriate facility; provide sufficient resources in the event of accidents or malfunctions; and provide for closure and post-closure observation and maintenance. The applicant must have appropriate indicators of financial health, including acceptable ratios of liabilities to net worth, liabilities to assets, and income, depreciation, depletion, and amortization to total liabilities. Other requirements include acceptable bond ratings, adequate net working capital and tangible net worth, and sufficient assets in the United States. 345 CMR 3.00 provides specific requirements for these financial indicators and other measures of appropriate financial viability.

2.6.3.2 Technical Criteria for Certification

The Board will review the proposed technologies of all potential facility operator applicants with respect to the criteria specified in the Operator Selection regulations. The Board will consider factors such as whether: proposed facility technologies appear to be capable of satisfying the licensing and operation standards of the DPH licensing regulations; technologies permit waste accepted at the facility to be monitored and retrieved; mixed waste can be accepted and properly managed; technology does not constitute shallow land burial; technologies are reasonable in light of the public benefit to be derived from their utilization; all personnel possess the requisite technical strength, professional training, and relevant experience; and the applicant comprehends the applicable laws and regulations and the required scope of work and resources required to perform the work.

The Operator Selection regulations list standards and other considerations the Board will use in judging whether an applicant meets the technical criteria.

2.6.3.3 Management Criteria for Certification

The Board will review the management record and capabilities of all potential facility operator applicants with respect to the criteria specified in the Operator Selection regulations. The Board will evaluate the applicant's: history of major or continuing violations of the public health, safety, or environmental requirements of federal, state, or local law; compliance with all orders, consent decrees, or similar administrative judgments; record in making full payment of any civil or criminal penalties imposed as part of a final judgment; record of not having been convicted of a criminal violation within ten years prior to the date or the application; likely ability to construct, maintain, and operate the proposed facility in compliance with applicable statutes, regulations, permits, licenses, the development contract, and the Comprehensive Operating Contract; experience and competence and ability to control performance of all responsible components of the proposed organization; creativity and competence in organizing and scheduling the required work, including ample public participation, for timely completion; and relevant, recent, similar experience.

The Operator Selection Regulations list standards and other considerations the Board will use in judging whether an applicant meets the management criteria.

2.6.3.4 Certifying Applicants as Potential Facility Operators

The Board will issue a report justifying its certifications, and distribute this report to each CSC, the applicants, and others of interest. If any operator applicant proposes more than one disposal technology, the Management Board will certify each individually, for use by the CSCs in their review of operator applicants and for use by the Superior Site CSC in its selection of the facility operator and disposal technology.

2.6.4 Establishing an Operator Applicant Advisory Board

The Management Board will execute contracts with all Certified Operator Applicants to ensure their participation in an Operator Applicant Advisory Board to assist in planning and implementing detailed site characterization. Since complete and defensible detailed site characterization data is essential for the facility operator's design and licensing program, Certified Operator Applicants must be involved in planning detailed site characterization.

## 2.7 Detailed Characterization of Candidate Sites

Detailed site characterization involves the on-site investigation, over a year's time, of hydrogeological and other environmental characteristics at each Candidate Site, to understand their relationship to each site in all four weather seasons. This technical analysis is the most important element of the technical screening activities, and will produce the most detailed level of data to allow the Management Board to choose a Superior Site.

A draft report of the findings from detailed site characterization will be issued by the Management Board for public review and comment. The report must also be sent to the EOEA Secretary for review following the procedures of MEPA.

2.7.1 Detailed Site Characterization Planning

2.7.1.1 Management Board's Role in Developing Detailed Site Characterization Plans

The Management Board and its siting contractor will draft generic and detailed site characterization plans prior to detailed site characterization. These plans will undergo extensive review by various interested parties to ensure that detailed site characterization will produce information necessary for facility design, analysis, other licensing requirements, and to accommodate public concerns.

To allow planning to proceed as early as possible, a Generic Detailed Site Characterization Plan will be developed prior to the identification of two to five Candidate Sites. The generic plan will establish the general policies, protocol, and procedures for conducting characterization of any site and include a listing of the detailed "Quality Management Procedures" (QMPs) required to perform each characterization activity. QMPs specified or required by the Generic Detailed Site Characterization Plan will be drafted to a large extent prior to identification of Candidate Sites.

Using the Generic Site Characterization Plan as a starting point, draft plans for detailed site characterization of each Candidate Site will be prepared by the siting contractor for inclusion in the Candidate Sites Identification Report. Planning for detailed characterization of Candidate Sites will continue after the Board votes to accept or amend the Draft Candidate Sites Identification Report and to proceed with the activities involved in detailed characterization.

Site characterization plans will be based upon and reflect data requirements derived from a thorough technical, statutory, and regulatory assessment and Preliminary Licensing Plan (discussed below). Detailed site characterization plans will reference and specify detailed QMPs that will be used by field workers, laboratory staff, and others to obtain, package, preserve, transport, store, analyze, and otherwise control and document data, procedures, and sample processing.

2.7.1.2 CSCs and Facility Operator Applicants Role In Developing Detailed Site Characterization Plans

Each CSC and the Operator Applicant Advisory Board will assist the Management Board in finalizing the Detailed Generic Site Characterization Plan and the detailed site characterization plans, for each Candidate Site, and participate throughout the implementation of the plans.

2.7.1.3 Public Hearings for Draft Plans for Detailed Site Characterization

The CSC of each Candidate Site and the Board will jointly conduct public meetings to discuss the draft plans for detailed site characterization. Prior to its adoption of the final Detailed Site Characterization Plan for each Candidate Site, the Board will consider and evaluate all comments made at the public meeting or in writing.

2.7.2 Detailed Site Characterization Activities

Detailed site characterization, as prescribed in the detailed site characterization plans adopted by the Board, will include investigations and tests, both in the field and in the laboratory, which will be conducted to:

- Demonstrate whether a Candidate Site complies with DEP site selection criteria, and to provide information necessary for licensing a facility at the site, including an evaluation of the ability of the site characteristics to contribute to waste isolation.

- Provide data necessary for the proposed design of such a facility.

- Identify potential interactions between the site characteristics and waste or waste containers located at the site.

- Establish data collection points and baseline data suitable for use in an environmental monitoring program.

- Identify, for inclusion in an Environmental Impact Report (EIR) prepared pursuant to the Massachusetts Environmental Policy Act (M.G.L. c.30, sections 61 to 62H), potential environmental impacts resulting from the development, operation, closure, post-closure observation and maintenance, or institutional control of a facility at the site.

Site-specific data will be collected on site characteristics that require further definition with respect to DEP siting criteria and for which data was unavailable or insufficient at previous site screening steps. Data will be obtained by various on-site and off-site measurements and exploration of features such as geology, surface and groundwater hydrology, meteorology, plant and animal ecology, seismic and volcanic activity and history, mechanics and chemistry of soil and rock, social and economic features of the site and region, cultural resources in the region, natural resources, and air quality.

Detailed site characterization activities will last at least one year, spanning four full seasons for parameters that vary with time or seasonally, although pre-operational environmental monitoring on the selected site will continue up to site operations. Characterization activities and acquired data will conform to the requirements and guidance contained in the latest revisions of applicable state and federal documents, including NUREG-1199, NUREG-1200, Regulatory Guide 4.18, NUREG-1300, and DOE/LLW-67T. Characterization activities and documentation will be conducted in strict accordance with approved quality assurance (QA) plans and approved quality management procedures (QMPs).

CSCs will be kept informed of the progress of detailed site characterization; will meet monthly with representatives of the Board and the Board's siting contractor; will be furnished copies of all data, reports, and memoranda pertaining to detailed site characterization activities; and will be given opportunities for review and comment.

2.7.3 Preliminary Performance Assessments

The behavior of an LLRW disposal facility with respect to the performance objectives specified in DPH regulations, 105 CMR 120.800, must be evaluated through the use of various "performance assessment" (PA) calculations and analyses. These PAs are required by both DEP regulations (to establish a slate of Technically Superior Sites from which a Superior Site may be selected), and the DPH regulations (to estimate facility performance for licensing purposes).

Preliminary performance assessment plans will be developed that define:

- Environmental system models and modeling parameters that are intended to represent the disposal system and its behavior in the environment.

- Computer code selection or other methods of calculation and data processing.

- Level of detail considered adequate for preliminary assessments.

- Data that will be used.

- At what points in the site selection process the assessments will be performed.

Preliminary PAs will be conducted on each Candidate Site selected for detailed characterization, and will be completed so that the results can be incorporated in a timely manner into the Draft Detailed Site Characterization Report. Site-specific environmental data will be used to the extent it is available at the time the preliminary PAs must be performed to meet delivery of the Draft Detailed Site Characterization Report.

2.7.4 Public Review of Draft Detailed Site Characterization Report

Following the year-long, four-season detailed site characterization of each Candidate Site and the completion of preliminary PAs, the Management Board will issue a Draft Detailed Site Characterization Report on all Candidate Sites for public review and comment. The Board will conduct at least two public meetings on the draft report in each Candidate Site Community, and accept written comments on the report from the CSC and other interested groups and persons.

2.7.5 Transmission of Draft Detailed Site Characterization Report to EOEA Secretary

At the same time that the Board issues the Draft Detailed Site Characterization Report, it will transmit a copy of the report to the Massachusetts Secretary of the Executive Office of Environmental Affairs (EOEA). The Secretary will implement the public review and comment procedures required by MEPA, and issue a statement evaluating the report's technical adequacy and conformance with DEP's LLRW facility siting criteria regulations. The Secretary will transmit a copy of this statement to the Board and the CSCs.

2.7.6 Management Board Determination on Draft Detailed Site Characterization Report

The Management Board has three choices in acting upon the Draft Detailed Site Characterization Report. It can accept, amend, or reject this report.

2.7.6.1 Acceptance of the Draft Detailed Site Characterization Report

Upon evaluation of the Draft Detailed Site Characterization Report by the Secretary, the Management Board will vote to accept, amend, or reject the report.

2.7.6.2 Amending the Draft Detailed Site Characterization Report

As a result of public hearings to receive comments from the public on the detailed site characterization process, and the EOEA Secretary's review of the draft report, it may require additional work, documentation, or report revision. In this event, additional effort will be conducted by the siting contractor and the Board to amend the report in accordance with appropriate comments.

2.7.6.3 Rejecting the Draft Detailed Site Characterization Report

If the Board rejects the draft report, it will be set aside, the procedures relating to detailed site characterization will be reviewed and revised if necessary, and the Board will meet with each CSC to discuss a draft plan for implementing a revised detailed site characterization process.

2.8 Management Board Vote to Select a Superior Site

The Management Board may vote, by two-thirds of its members, to select a Superior Site for a facility if the Board has accepted the Draft Detailed Site Characterization Report. The selection of a Superior Site will be based upon a number of criteria. A description of the Management Board's decision-making process is provided in section 3.4.

If the Superior Site is a volunteered site, the Volunteer Site Agreement will take effect.

2.9 Property Value Protection Guarantee for Property Owners Near a Superior Site

The Management Board will implement its property value protection program designed to ensure that property owners near the Superior Site will have a guarantee of protection from any loss of property value if they sell their property within five years after a facility is licensed.

2.10 Adjudicatory Review of Site Selection

If any person aggrieved by the site selection process petitions the Department of Environmental Protection (DEP) after the selection of a Superior Site, the Commissioner of DEP will commence an adjudicatory proceeding concerning site selection. Because DEP is not responsible for site selection, it can act in its regulatory capacity to evaluate the site selection process conducted by the Management Board.

In addition to the petitioner, the Management Board, the Site Community, and Neighboring Communities will be parties to the adjudicatory proceeding, and other aggrieved individuals or groups could intervene. The expenses of the Site and Neighboring Communities to participate in the adjudicatory proceeding will be reimbursed by the Management Board.

2.11 Legal Review of Site Selection

Any person aggrieved by the DEP Commissioner's decision may seek judicial review in the Massachusetts Supreme Judicial Court.

2.12 Acquiring the Site

Upon a vote by the Management Board to select a Superior Site, the state will acquire a fee simple interest in the property, together with such other land, easements, rights-of-way or other property interests necessary to construct and operate an LLRW disposal facility. If the site is on property owned by the state, actions will be taken to transfer control and use of the property to the Management Board.

2.13 Selection of the Facility Operator and Disposal Technology

Two of the principal roles of the Site Community, working through its CSC, are to select the company it feels can best operate the facility to meet the site and community's needs, and to choose the type of technology that will control the facility design.

The CSC will have opportunities to evaluate any aspects of the Certified Operator Applicants'

qualifications or responses to the request for proposals issued by the Management Board for facility development, operation, and closure (see section 2.6.1). Each operator applicant will have chances to respond to CSC inquiries, and to offer changes in the plans submitted to the Management Board, to meet CSC concerns or recommendations. Such issues for discussion may include agreements offered by operator applicants concerning compensation, transportation routing, access road construction, limitations on the hours or facility operation or the number of LLRW deliveries to the facility; hiring of facility employees from the local community, and local purchase of goods and services.

2.13.1 Selection of Facility Operator by the Site Community

The CSC of the Superior Site Community (or communities if the site is situated in more than one community) will interview Certified Operator Applicants, and by a majority vote, select the company to operate the facility at the Superior Site.

If CSCs fail to select an operator from the Certified Operator Applicants in a timely fashion, the Board may select an operator by a vote of its members.

2.13.2 Selection of Facility Disposal Technology by the Site Community

The CSC of the Superior Site Community will select the type of technology (i.e., above-ground vaults, below-ground vaults, above-ground canisters inside vaults, etc.) for any LLRW disposal facility sited, developed, operated, and closed in accordance with Chapter 111H and DPH regulations. The Superior Site CSC may not consider shallow land burial as a disposal technology because of the prohibition in the Act on the use of this disposal method in Massachusetts.

The CSC must select facility technologies that meet the strict requirements of Chapter 111H and DPH regulations for waste monitoring and retrieval, if necessary, and maintaining the institutional control period of the facility as long as necessary for waste to decay to maximum concentrations above natural background levels. In addition, the technology must allow a facility design that can meet DPH's objective to ensure "zero release" of radioactivity from the engineered structures designed for LLRW disposal.[4] All of these requirements are intended to ensure that state government never "walks away" from an LLRW disposal site, unless the site is free from radioactive contamination. For these reasons, the technology choice by the CSC of the Superior Site Community will provide for a "disposal" facility that is analogous to very, very long-term storage.

2.14 Execution of Development Contract with Facility Operator

The Management Board and the facility operator chosen by the Site Community CSC must execute a development contract which obligates the operator to fulfill all the requirements of the facility approval and licensing process.

2.14.1 Obligations of Facility Operator

After CSCs select a facility operator from among the Certified Operator Applicants, the Board will execute a development contract under which the operator will be obligated to fulfill all of the

[4] The explicit language of the DPH regulation states: "Any disposal facility shall have its engineered structures designed with the goal to totally hold their waste content for the period of the hazardous life of the radioactive waste (zero release design objective.)"

requirements for the facility approval process established in Chapter 111H. The operator will submit a plan for these activities to the CSCs. The operator shall be required to post a bond payable to the Board should the operator default on the performance of these activities.

2.14.2 Failure to Execute a Development Contract

If no development contract is executed between the Board and the operator, or if the required bond is not posted, the CSC's choice of operator will be set aside, and the CSC will be required to repeat its activities to select a replacement operator. As noted, the failure of the CSC to select a facility operator will require the Management Board to fulfill this responsibility.

2.14.3 Assistance by the Division of Capital Planning and Operations

The Board will seek the assistance and advice of the Commissioner of the Division of Capital Planning and Operations (DCPO) in overseeing activities under the development contract and in evaluating the adequacy of such development activities. The CSC may also meet with DCPO to discuss aspects of its activities to select a facility operator.

# Section 3
# LLRW DISPOSAL FACILITY SITING PROGRAM IMPLEMENTATION

## 3.1 General Approach

In broad terms, the information in this section addresses the management and planning strategies required to implement the tasks and activities described earlier in this plan. More detailed procedures, management tools, and quality assurance programs will be developed with contractor assistance at appropriate project milestones. These enhancements to the Board's plans will be documented in other project documents, such as the Possible Locations and Candidate Site Selection Procedure, a Project Management Plan, and the Quality Assurance Program Plan.

This section briefly addresses four major program elements necessary to satisfactorily complete the disposal facility siting program:

- Detailed project planning with respect to technical and licensing requirements.
- Integration of tasks and responsible entities.
- A clearly defined and defensible site selection decision-making process.
- Detailed and comprehensive project management and quality assurance programs.

## 3.2 Project Planning to Define Technical and Licensing Requirements

### 3.2.1 Technical Planning Tasks

Two early project planning tasks will help facilitate the coordination and integration of tasks and contractors, and ensure completeness of data and information for the license application. These tasks are:

- A thorough technical, statutory, and regulatory analysis.
- The development of a Preliminary Licensing Plan.

### 3.2.2 Technical, Statutory, and Regulatory Analysis

A rigorous technical, statutory, and regulatory analysis will be completed at the earliest possible stages of the facility siting and development project. The analysis will identify all of the tasks and subtasks required to provide the information for a complete license application. Task relationships and assignment of responsible parties will be determined from this identification of requirements, tasks, and subtasks.

Development of all project plans and procedures will be based on this analysis. The analysis and its impact on program plans and procedures will be carefully reviewed with interested parties and all Certified Operator Applicants upon their certification. The analysis will be revisited throughout the process to update program procedures, if necessary, and to ensure the concurrence of all entities associated with obtaining data for or developing the facility license application. Comments and suggested revisions of the project plans and procedures will be considered and implemented,

if appropriate.

The analysis also will be used to generate and review the operator's proposed implementation of the disposal technology selected by the Superior Site CSC(s) and facility operating procedures.

3.2.3 Development of a Preliminary Licensing Plan

A Preliminary Licensing Plan will be developed as early as possible in the siting project from the requirements derived from the technical, statutory, and regulatory analysis. The analysis will provide the guidance to construct a licensing "road map" and other requirements for the Preliminary Licensing Plan.

The siting contractor will develop the Preliminary Licensing Plan which will thoroughly describe the licensing documents (license application, Safety Analysis Report, Environmental Impact Report, etc.) required by the DPH requirements in 105 CMR 120.800, and related guidance documents. The plan will describe the information required in a facility license application and supporting materials, the source of that information or how it will be derived for this project, and the responsibilities of the siting contractor, the Certified Operator Applicant Advisory Board, the facility operator, and the Management Board for generating or providing the information.

The Preliminary Licensing Plan will be reviewed by Certified Operator Applicants. The siting contractor will cooperate in providing requested information and in revising the preliminary plan in accordance with Certified Operator Applicant comments, as appropriate, and with the Board's approval.

In combination with the technical, statutory, and regulatory analysis, the Preliminary Licensing Plan will provide guidance in defining project tasks and in developing information required for a complete disposal facility license application.

## 3.3 Integration of Project Elements

The LLRW disposal facility siting and development program has several distinct phases that will be implemented with the assistance of a Statewide Mapping and Screening contractor, a siting contractor, and the facility operator, with overall program management the responsibility of the Management Board. Other tasks and activities are the primary responsibility of other parties, as described in the preceding presentation of the siting process. Since the viability of a license application submitted by the facility operator will be directly influenced by the suitability and completeness of the supporting tasks performed by others, the efforts of these entities must be carefully integrated.

### 3.3.1 General Requirements

Table 1 illustrates some of the responsibilities assigned to the various entities involved in the siting process. Some of the major elements, which must support the license application and which are developed or influenced by these various entities, are discussed in this section. A comprehensive project management system will be developed and is required to integrate these and all the other elements of the LLRW disposal facility siting program.

Table 1
Task Responsibility Assignments

| Task | Responsibility<br>P=Primary S=Support R=Review & Comment A=Approve | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Statewide Mapping & Screening Contractor | Siting Contractor | Certified Operator Applicants | Facility Operator | Management Board | DEP | DPH | CSC | Public |
| Develop Siting Plan | S | | | | P | | | | R |
| Statewide Mapping & Screening | S[5] | | | | R,A | | | | R |
| Develop Project Management & QA Programs | | P | S | | R,A | | | | |
| Develop Preliminary Licensing Plan | | P | S | R | R,A | | | | R |
| Develop Site Selection Procedures | | P | S | | R,A | R | | | R |
| Possible Locations Screening | | P | | | R,A | | | | R |
| Candidate Site Screening | | P | | | R,A | | | | R |
| Volunteer Site Program Planning | | | | | P | | | | R |
| Integration of Volunteer Sites | | P | | | S,A | | | | R |
| Preliminary Site Characterization Planning | | P | S | | R,A | R | | | R |

[5] Statewide Mapping and Screening will be performed by the Statewide Mapping and Screening contractor using the MassGIS.

Table 1 (continued)
Task Responsibility Assignments

| Task | Responsibility<br>P=Primary S=Support R=Review & Comment A=Approve | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Statewide Mapping & Screening Contractor | Siting Contractor | Certified Operator Applicants | Facility Operator | Management Board | DEP | DPH | CSC | Public |
| Preliminary Characterization of Locations Considered as a Possible Candidate Site | | P | S | | R | R | | | R |
| Detailed Site Characterization Planning | | P | S | | R,A | R | | P | R |
| Detailed Site Characterization | | P | S | | R | | | R | R |
| Preparation of Site Characterization Reports | | P | S | | R,A | R | | R | R |
| Preliminary Performance Assessments | | P | S | | R,A | | | | R |
| Pre-operational Environmental Monitoring Program | | P | S | S | R,A | | R | R | R |
| Selection of a Superior Site | | S | | | P | S | | R | R |
| Adjudication and Legal Proceedings | | S | S | S | P | | | S | |
| Preliminary Licensing Documents | | P | S | S | R,A | | R | R | R |
| Public Participation Programs | | S | S | S | P | | R | R | R |

Table 1 (continued)
Task Responsibility Assignments

| Task | Responsibility<br>P=Primary S=Support R=Review & Comment A=Approve | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Statewide Mapping & Screening Contractor | Siting Contractor | Certified Operator Applicants | Facility Operator | Management Board | DEP | DPH | CSC | Public |
| Selection of Disposal Technology | | S | | | S | | | P | R |
| Statewide Voter Approval After Licensure | | | | | | | | | A[6] |
| Final License Application, EIR & Supporting Documents | | S | | P | R | R | R | R | R |
| Facility Design & Development | | S | | P | R | | | R | |
| Operation, Closure, Post-Closure Environmental Monitoring | | | | P[7] | RP | | R | S[8] | R |
| Institutional Control | | | | | P[9] | R | S | S | R |

[6] The statute requiring statewide voter approval also requires approval by the Legislature first. See additional information regarding Chapter 503 on page 40.

[7] The operator shall be primarily responsible for environmental monitoring through the operation, closure, and post-closure periods.

[8] Environmental monitoring activities will be overseen by local Boards of Health on behalf of Superior Site Communities.

[9] The Board shall be primarily responsible for environmental monitoring during the institutional control period.

3.3.2 Site Selection and Detailed Site Characterization Data

Results of site selection and detailed site characterization activities of the Statewide Mapping and Screening contractor and the siting contractor will form a major part of the license application's supporting documents submitted by the facility operator. Site-related information that the siting contractor must provide to the facility operator includes information required for a number of licensing and operating purposes. These include data required for the operator's pre-operational environmental monitoring program and the preparation of the license application as required by DPH regulation; the Environmental Impact Report; the Safety Analysis Report; facility design; and the preparation of other permit applications.

The information provided to the facility operator by the siting contractor for licensing purposes must meet the requirements, standards, and guidance contained in DPH regulations 105 CMR 120.800, DEP site selection criteria regulations 310 CMR 43.00, NUREG-1199, NUREG-1200, NUREG-0902, Regulatory Guide 4.18, NUREG-1300, NUREG-1388 and all applicable federal and state permits or licenses, including those governing mixed waste (e.g., M.G.L. c.21C, RCRA, 310 CMR 30.00, 40 CFR 261, 40 CFR 264, and joint NRC/EPA guidance on mixed waste disposal) and NARM waste. Other current guidance, such as DOE/LLW-67T - Site Characterization Handbook for Low-Level Radioactive Waste Disposal Facilities, will also be used in establishing detailed characterization and licensing data requirements.

All such data must be consistent with data requirements established in the Preliminary Licensing Plan and agreed upon by Certified Operator Applicants and the siting contractor. Certified Operator Applicant input to these data requirements will be accomplished through appropriate planning and interface procedures.

3.3.3 Pre-operational Environmental Monitoring

Chapter 111H requires that detailed site characterization include the gathering of data necessary to provide baseline data for the operator's environmental monitoring program. DPH regulations also require that the results of the operator's pre-operational environmental operating program be presented at the time a license application is filed with DPH. To minimize delays in obtaining at least one full year and four full seasons of data for the pre-operational environmental monitoring program, this data-gathering program will be initiated by the siting contractor during detailed site characterization. The siting contractor therefore will develop a pre-operational environmental monitoring program, as part of the site characterization program, that complies with the requirements of DPH regulations and the intent of Chapter 111H.

The Board will ensure that procedures developed by the siting contractor require that pre-operational environmental monitoring data requirements be developed with the input of Certified Operator Applicants at the earliest possible time in the process. The pre-operational environmental monitoring program will be continued and maintained by the contractor through the entire detailed site characterization phase for all sites being characterized until a Superior Site is selected by the Board, and for 30 days after a development contract is signed by the Board and the facility operator. Environmental monitoring will be conducted by the facility operator and continue through facility licensing, development, operation, closure, and post-closure observation and maintenance. DPH will also implement an environmental monitoring program during operation and post operating activities, and the Management Board will continue environmental monitoring of the facility during the institutional control period.

3.3.4 Selection of a Facility Operator and Disposal Technology

Facility performance, at least during operations and for some period of time during operations and after closure, is significantly influenced by the characteristics of the disposal technology employed at the site. Disposal technology impacts operator exposure, any off-site direct radiation doses, the potential amount of activity in effluent pathways at a given time, and facility stability, all of which must be considered in evaluating the combined site/technology (i.e., facility) performance. Since facility performance will be a function of both site and disposal technology, integration of disposal technology features with Candidate Site characteristics will be necessary to predict facility performance, and thus, to select a Superior Site. Although operator and disposal technology selection are made by the Superior Site CSC after the selection of a Superior Site, acceptable disposal technologies, such as those listed in Management Plan regulations 345 CMR 1.00, and those proposed by the Certified Operator Applicants, will be used in modeling facilities for preliminary performance assessments (PAs).

PA plans will be developed with review and input from the Certified Operator Applicant Advisory Board, and will reflect agreement regarding facility technologies, modeling, and computer codes that will be used for preliminary PAs and by the facility operator for final site licensing PAs. These PA plans will be reviewed by Certified Operator Applicants, interested groups and individuals, and the Board.

3.3.5 Waste Characterization Data

The detailed estimation of waste inventory characteristics of the "source term" will be developed by the Board, and will be utilized by both the siting contractor and the facility operator for various design, analysis, and licensing purposes. Detailed waste characterization data will be used for facility size evaluations, preliminary and final design of disposal unit structures and other site facilities, preliminary and final performance assessments, public participation and public information programs, and licensing documentation.

Source term waste characterization data must be provided to the siting contractor and Certified Operator Applicants shortly after the siting contractor initiates site selection activities for Possible Locations. The Management Board will develop this data prior to hiring a siting contractor. During the siting process, the Board will review and revise source term waste characterization data, as necessary.

3.3.6 Volunteer Sites Program

The development and implementation of the Volunteer Sites Program will be conducted by the Board and will be integrated into the technical screening process as described in Section 2 of this Siting Plan. This program will result in approximately a two-year delay between the release of the Statewide Mapping and Screening Report and the initiation of the screening effort for Possible Locations. During the last six months of the Volunteer Sites implementation period, bids will be requested from organizations qualified and interested in becoming the siting contractor. A contract will be signed with the successful bidder by the end of the Volunteer Sites Program.

The siting contractor will conduct the remaining siting activities, including the evaluation of volunteer sites. Volunteer sites will be evaluated with respect to the same site selection and performance criteria as will be used to evaluate other Candidate Sites revealed by technical screening during Possible Locations and Candidate Sites stages. The Board, with the siting contractor's assistance, will evaluate and compare all sites identified by both the volunteer and

technical screening processes, and select two to five Candidate Sites for detailed site characterization.

3.3.7 Public Participation Program

The scope and content of public information and public participation programs will be developed and implemented by the Board. This program requires substantial input and action by the public and will impact all responsible parties, tasks, and project schedules. Program plans and schedules will appropriately integrate public participation elements into the process. The integration of the public into various siting steps has been described throughout this plan.

3.3.8 Detailed Site Characterization

Primary responsibility for carrying out detailed site characterization lies with the siting contractor. The contractor will develop draft and final planning documents and procedures and perform all detailed site characterization activities. However, the facility operator will be vitally interested in the data developed during detailed site characterization, since it will be a central element of the license application to be filed by the operator. Similarly, Candidate Site Communities will be interested in ensuring that detailed site characterization activities will capture all relevant data necessary for conducting valid performance assessments, other safety evaluations, and for addressing other community concerns.

To accommodate the interests of these parties to the facility siting and development process, each will be involved in planning and detailed site characterization. Draft characterization planning documents will be made available for public review and comment. Pursuant to Management Plan regulations in 345 CMR 1.00, the Board and appropriate CSCs will jointly conduct public meetings in each Candidate Site Community to discuss the draft plan for the detailed characterization of the Candidate Site located within their community. Board officials and the contractor will meet monthly with each CSC during the characterization planning and implementation steps.

During the performance of detailed site characterization activities, the siting contractor will prepare appropriate information and duplicate ("split") samples for use by the Candidate Site Communities and their technical consultants. Each Candidate Site CSC will be kept informed of the progress of detailed site characterization; be furnished copies of all data, reports, and memoranda pertaining to the detailed site characterization, including raw data and draft reports; and be given reasonable opportunity to review and comment on all work performed.

In planning detailed site characterization, the siting contractor also will work with the Certified Operator Applicants to obtain their comments and to establish specific site data requirements for subsequent operator design and licensing purposes. These requirements may include, but are not limited to, design of the pre-operational environmental monitoring program, and data for final facility design and performance assessments, to minimize the amount of site specific data that must be obtained by the facility operator after selection of the Superior Site. Site characterization plans and scheduling will reflect this interface requirement and data acquisition objective.

## 3.4 The Management Board's Site Selection Decision-Making Policies and Procedures

With contractor support and public input, the Board will establish policies and procedures for evaluating the significance of siting criteria identified in DEP's site selection criteria regulations, 310 CMR 43.00, as well as additional criteria that the Board may wish to consider.

3.4.1 Decision Criteria and Factors

There are several factors, including DEP site selection criteria, that will influence the Management Board's selection of a Superior Site. These include:

- Site screening and evaluations of sites, including those that may have been volunteered, using DEP site selection criteria and other criteria adopted by the Board.
- Results of detailed site characterization.
- Results of performance assessments on Candidate Sites, including those that may have been volunteered, to technically qualify any of them as Technically Superior Sites.
- Other considerations including cost, availability, and community acceptance.

3.4.2 Site Screening

The methodical application of DEP site selection criteria during the site screening process provides an efficient means for identifying sites that are likely to meet DPH performance objectives and that will comply with other environmental standards. Sites identified by site screening and the Volunteer Sites Program will be evaluated further, using other measures described in this section, to establish Technically Superior Sites, from which a Superior Site will be selected.

3.4.2.1 Purpose and Applicability of DEP Site Selection Criteria

The primary purpose of DEP site selection criteria regulations are to guide the Board in identifying one or more Technically Superior Sites. A Technically Superior Site is defined by DEP as one that would meet the following standards:

- The site does not exhibit any Exclusion Criteria.
- The site does not exhibit any Conditional Criteria unless the site meets the following conditions:

  a. The standards and/or modifications required as a pre-condition for site consideration either are able to be reasonably satisfied at the time of site selection, or are determined to be reasonably likely to be satisfied before facility construction commences; or

  b. A site-specific analysis demonstrates that the potential adverse effect of off-site migration or of public exposure to radioactivity against which the criterion was intended to protect will not reasonably affect the sites ability to meet DPH performance objectives or demonstrates that the criterion is inapplicable to the waste isolation capability of the site or the facility.

- A performance assessment conducted in accordance with the protocols approved by DPH (the NRC if that federal regulatory agency has jurisdiction over facility licensing) demonstrates that the site will meet DPH (or NRC) performance objectives.

The three-step, detailed technical screening process described in Chapter 111H and DEP regulations (310 CMR 43.00) is one of a number of methods that can be used to seek technically

superior LLRW disposal sites in the Commonwealth. This screening process is designed to efficiently eliminate areas that are likely to be unsuitable for a site, and to narrow the field to a manageable number of Candidate Sites that then can be evaluated in detail. Since this siting process is intended to be a reasonable and cost-effective approach, it is not possible to characterize every small parcel of land in detail.

In addition, it is possible that Technically Superior Sites not identified in the screening process may be brought to the Board's attention. These sites may fall within larger areas that may be or would have been set aside by the screening process using preference or conditional acceptance criteria during the Possible Locations or Candidate Site screening steps. Such cases may arise through the process of volunteer site offerings or the availability of other parcels revealed during the site selection process. Sites that are brought to the Board's attention in a timely fashion after the issuance of the Statewide Mapping and Screening Report, and that do not fall within the areas excluded in that report, may be considered for further evaluation with respect to technical siting criteria and other factors. These sites may eventually qualify as Technically Superior Sites.

3.4.2.2 Requirements and Alternatives for Applying Site Selection Preference Criteria

Although there are specific site selection criteria established in the DEP regulations which must be applied in seeking Technically Superior Sites, the Board is allowed latitude in performing the site selection process, in establishing other relevant preference criteria, in applying the guidance provided by DEP, and using other decision-making factors. DEP notes in its regulations that its list of preference criteria is not intended to prohibit the Board from applying additional preference criteria in accordance with the provisions of Chapter 111H, provided that such criteria do not contravene the DEP criteria. Although a Candidate Site may possess superior qualities with respect to one criterion relative to other Candidate Sites, but may not be as highly rated on another criterion, DEP regulations also allow that the Board is not required to base its site selection decision on a comparison of the relative advantages or disadvantages of preference criteria exhibited among Technically Superior Sites.

In addition, the Board will employ a means to accommodate the likelihood that some preference criteria will be considered more important than others. The method for addressing the relative importance of each preference criterion will be derived through evaluation of statutory and regulatory analysis and through public discussion. The Board will obtain counsel from the Public Participation Advisory Committee, DEP, DPH, LLRW generators, the siting contractor, and other interested parties on this subject. The Board also will retain a consultant with experience in siting similar facilities to develop a mechanism for the Board's consideration. The mechanism derived from this process will be used to determine the manner in which the relative importance of the preference criteria will be accommodated, how it will be applied, and how sites will be compared to one another with respect to the siting criteria.

3.4.3 Role of Detailed Site Characterization Data

Detailed site characterization will provide comprehensive data on each Candidate Site at a level of detail not attainable from the three-step screening process. The data will be used to conduct preliminary performance assessments to evaluate facility performance with respect to DPH criteria. If detailed site characterization determines that all sites meet DEP site selection criteria and that no flaws are revealed that cast significant doubt on the site's ability to meet DPH performance objectives, the Board will compare the sites to each other with respect to other decision-making factors.

3.4.4 Results of Performance Assessments

Pursuant to DEP site selection criteria regulations, 310 CMR 43.00, sites may be excluded "which are not reasonably likely to meet DPH performance standards based on a performance assessment that, at a minimum, incorporates the facility design standards of probable suitable technologies set forth in 105 CMR 120.815." This evaluation measure will be applied at two points in the process. A preliminary PA will be conducted on Candidate Sites and suitable technologies using data from detailed site characterization. A final PA, using final site characterization and facility design data, will be conducted for the facility license application to demonstrate that the Superior Site, and technology selected by the Superior Site CSC, will meet DPH performance objectives.

The DEP regulations require only that a Technically Superior Site be reasonably expected to meet DPH performance objectives. Performance assessments therefore will be used to estimate whether a site will meet DPH performance objectives and can be qualified as a Technically Superior Site. Thus, following preliminary PAs, several sites may be qualified as Technically Superior Sites.

3.4.5 Other Factors Affecting a Superior Site Decision

There may be important factors appropriate to selection of a Superior Site from a group of Technically Superior Sites, other than those technical criteria related to DEP and DPH regulations. Such factors include:

- Site availability based on land use restrictions or other covenants.
- Availability for sale or transfer to the state.
- Total cost to develop.
- Community consent.

Although any site, to be considered a Superior Site, must meet the minimum requirements for a Technically Superior Site specified by DEP in 310 CMR 43.00, these other factors may influence final site selection. DEP siting criteria along with site characterization data and performance assessments will be used to qualify a limited number of sites, but the final selection of a Superior Site may be based on the most favorable combination of these other important factors.

## 3.5 Program Management

The many tasks and participants in the siting process will require careful management, coordination, and control. The Management Board will act as the overall program manager to coordinate the somewhat separate and distinct phases of disposal facility siting and development, including: Statewide Mapping and Screening, Volunteer Sites Program implementation, Possible Locations screening, identification of Candidate Sites, detailed site characterization, operator and disposal technology selection, source term waste characterization, licensing, and public participation.

3.5.1 Project Management and Control

A project management program (PMP) will be developed and documented in detail in a plan, project management manual, or other similar guidance document for the siting contractor's and Board's use in managing the site selection tasks, detailed site characterization, and related activities.

The project management program document will discuss in detail how all tasks will be performed and will identify appropriate interfaces, data interchange requirements, and other dependencies with other siting program tasks, the Board, other state agencies, subcontractors, Certified Operator Applicant Advisory Board, CSCs, other local officials, environmental organizations, associations of radioactive materials users, and other interested members of the public involved in facility siting, licensing, and construction. The PMP will identify and include other relevant entities, including interested environmental and LLRW generator groups in this planning. The PMP will describe the project organizational structure, project controls, quality assurance program, and other project functions and procedures.

The PMP will include, but is not limited to, sections addressing the following topics:

- Scope of Work
- Work Breakdown Structure
- Organization, Responsibilities, and Authority
- Schedules
- Resource Allocation Plan
- Budgets and Cost Estimate Basis
- Quality Assurance Program Plan
- Environmental, Safety, and Health Program Plan
- Security Plan
- Data Quality Plan
- Management Control Plan
- Reporting Requirements
- Configuration and Records Management Plan
- Change Control Plan
- Facility Developer/Operator Interface and Data Exchange Plan
- Detailed Site Characterization Data Collection Minimization Plan
- MassGIS Interface Plan
- Public Participation Program Support Plan
- Pre-Operational Environmental Monitoring Program Plan
- Appendices, as required

The project will employ a "work breakdown structure" (WBS) or equivalent mechanism for defining tasks and subtasks down to manageable levels or work packages that allow sufficient definition, control, and resource loading. The project plan will include a Gantt Chart display (or similar representation) of tasks and subtasks consistent with the WBS and in sufficient detail to illustrate task relationships and timing. The Gantt Chart will illustrate the critical path(s) and important milestones which impact the timely completion of the project. Adequate time will be allowed in the project schedule to accommodate public review periods throughout the process.

Baseline project management system values will be developed and used to control actual project schedules and costs. Actual costs and schedule data will be kept current in the PMP software to allow timely development of variance reports and other current management information for the contractor's and Board's use. A monthly reporting system will be established and maintained that will keep the Board informed of progress, cost and schedule status, variances, problems, and proposed and effected problem resolutions.

The Board also will implement a similar project management system to control all project

elements, including those outside the scope of the siting contract.

### 3.5.2 Quality Assurance Program

All work related to site selection, detailed site characterization, source term development, disposal technology evaluation and integration, performance assessments, and other analyses and calculations performed for the design and licensing of the LLRW disposal facility must be conducted in accordance with an approved Quality Assurance Plan (QA Plan). The procedures for the conduct of these tasks will include a QA procedures designed to ensure data reliability, validity, traceability, and retrievability, as well as completeness and technical adequacy, for use in making any site selection decision, design decision, or subsequent licensing determination. A graded approach to quality assurance will be applied for this project where the degree of control is dictated by the nature of and relative importance of each task.

The QA program for this project will be consistent with the regulations, standards, and guidance of the Massachusetts DEP (310 CMR 43.00), DPH (105 CMR 120.800), and the Board (345 CMR 1.00); 10 CFR 61; NUREG-1293, "Quality Assurance Guidance for a Low-Level Radioactive Waste Disposal Facility;" NUREG-1383, "Guidance on the Application of Quality Assurance for Characterizing a Low-Level Radioactive Waste Disposal Site;" and DOE/LLW-109, "Generic Quality Assurance Program Plan."

Design reviews for the purpose of critically examining the design and completeness of major program elements prior to their implementation (such as site selection plans, site characterization planning, performance assessment plans, environmental monitoring programs, and final design and licensing packages) will form an integral part of the QA program. Design reviews will be conducted by a team of individuals with backgrounds in relevant disciplines and who were not directly involved in developing the task materials under review. Recommendations of the design review team must be thoroughly evaluated by the project team responsible for the task under review. The project task team will provide written justification for any recommendations of the review team that are not adopted.

### 3.5.3 Records Management

It is important that all of the records generated or processed by the Board and its contractors be properly categorized, maintained, and safeguarded to ensure that complete and objective evidence is available for use in any future legal proceedings or for other purposes to substantiate that Board activities and responsibilities have been performed satisfactorily and in accordance with applicable laws, regulations, and guidance. The Board, with contractor assistance, will establish a comprehensive records management system to catalogue and allow efficient retrieval of project documents.

## Section 4
## LLRW DISPOSAL FACILITY POST-SITING ACTIVITIES

### 4.1 The Post-Siting LLRW Disposal Facility Life-Cycle

Several phases in the life-cycle of an LLRW disposal facility will be implemented after the selection of a Superior Site and the execution of a development contract with a facility operator. These phases include, facility licensing, development, operation, closure, post-closure observation and maintenance, and institutional control. They are briefly described in this section, and are described in more detail in Chapter 111H and 105 CMR 120.800.

### 4.2 LLRW Disposal Facility Licensing

The facility must be licensed by DPH (or the NRC if Massachusetts is not an Agreement State) before construction can begin. An environmental impact review of the proposed facility must be conducted by the MEPA staff of EOEA, and a final Environmental Impact Report (EIR) must be accepted before DPH acts on a license application. After these conditions are satisfied, DPH will issue a draft license approval or draft denial for public comment. DPH will respond in writing to all comments received.

Upon issuance of a facility license, the Management Board, after consultation with the CSC of each Superior Site Community, and the operator will negotiate a Comprehensive Operating Contract. Under the provisions of the contract, the facility operator will be responsible for complying with financial and other stipulations that benefit the Site Community and Neighboring Communities, including payments mandated by regulation and any additional compensation negotiated between the facility operator and the Board, on behalf of these communities.

### 4.3 Chapter 503 Implementation

Chapter 503 (M.G.L. c.164, Appendix, ss. 3-1 to 3-9) requires the legislature to certify that the site and technology are "superior." Subsequent to that determination, the statute requires voter approval on a statewide ballot for any facility sited in Massachusetts for LLRW storage, disposal, or treatment by incineration, which is not solely for the storage, disposal, or treatment by incineration of waste produced from medical or bio-research applications.[10]

### 4.4 Facility Development

Upon issuance of a license for a facility, DPH will establish an environmental monitoring program to ensure an independent monitoring system for the Site Community. The operator will present facility construction plans to DPH for approval prior to the commencement of construction. After approval of

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[10] On June 12, 1986, the Massachusetts Supreme Judicial Court responded to the state Senate's request for an advisory opinion by stating that the legislative certification and voter approval provisions of Chapter 503 pertaining to the siting of an LLRW facility could not be constitutionally incorporated into the regulatory structure that would be established by the then-pending legislation that ultimately became Chapter 111H. After the court issued its opinion, the Legislature enacted Chapter 111H without any language referring to Chapter 503.

construction plans, site construction can proceed and will be monitored by the Management Board, DPH, and the CSC(s).

### 4.5 Facility Operation

If DPH determines that the facility meets all conditions of the license, and if the Management Board determines that the operator has so far honored its operating contract, the facility may open to accept LLRW. The facility will be operated in accordance with the DPH regulations. DPH, in consultation with the Board, may issue an order temporarily or permanently closing the facility prior to its scheduled closing date if it finds that there is a potential hazard to public health, safety, or the environment which justifies such closure.

During the operational period of the facility, which may last 30 to 40 years or more, the operator must honor its contractual obligations to the Site Community, as well as, pay state fees to cover maintenance, monitoring, liability claims, cleanup (if necessary), and costs of stabilizing the site during the institutional control phase after the facility no longer accepts waste. User fees will be collected to cover these costs and all other costs of facility operation and maintenance.

### 4.6 Facility Closure and Post-Closure Observation and Maintenance

The operator must file an application for renewal or an application for closure at least one year prior to the date scheduled for facility closure stated in its Facility Closure Plan. The operator will monitor the facility and carry out the closure plan until the facility closure is complete. The operator will observe, monitor, and carry out necessary maintenance and repairs at the facility until a period of no less than five years after the site closure is complete. Following the period of post-closure observation and maintenance, the operator may apply to transfer the facility license to the Management Board.

### 4.7 Institutional Control

The Management Board will assume responsibility for the site after site closure, the completion of post-closure observation and maintenance by the facility operator, and transfer of the facility license to the Board. The length of the institutional control period is not specifically set by law or regulation. However, the law and DPH regulations require that the "institutional control period shall not be less than the minimum time required for any LLRW present at the site to decay to the maximum concentrations above natural background levels permitted to be released" under federal and state law. The impact of this requirement is that any LLRW containing greater than these concentrations would be retrieved and removed from the site prior to the end of institutional control. Therefore, the Commonwealth will not walk away from the facility unless all LLRW above acceptable environmental concentrations has decayed or has been retrieved and removed from the site. This limit on residual LLRW concentrations and the retrievability requirement essentially make the LLRW disposal facility a very, very long-term storage facility.

## Appendix A

## VOLUNTEER SITES PROGRAM PLAN

**Note: The Volunteer Sites Program Plan is being issued as a separate draft document for purposes of public review and comment.**